THE CONSTRUCTION INDUSTRIES OF DEVELOPING COUNTRIES : THE APPLICABILITY OF EXISTING THEORIES AND STRATEGIES FOR THEIR IMPROVEMENT AND LESSONS FOR THE FUTURE. THE CASE OF GHANA

by

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ABSTRACT

The evolution of ideas on socio-economic development is first considered to show that they were theoretical in the beginning, and tended to be generalised and accorded global applicability, but were revised as experiences in the developing countries increased knowledge of the development process.

The nature of the construction industry and its role in development are next discussed, and the features of the task of improving it identified. It is observed that the industry faces problems in every country.

In reviewing existing studies of the construction industries of developing countries, the similarity between their diagnoses of the problems and prescriptions for improvement are noted. Generally, they suggest that construction can constrain development and therefore it should be improved and expanded to avoid this.

Main themes of current proposals for improving construction in developing countries are crystallised and compared with Ghana's experience in developing its industry between 1951 and 1979. After showing that Ghana has attempted to implement most of the current proposals without significant success, it is observed that certain socio-cultural, historical and political factors underlying the industry's problems and hindering their solution are often overlooked, and that the issue of improving construction is complex and variable. Furthermore, despite generally depressing conditions, and contrary to usual calls for new procedures and systems and additional resources, much can be gained by utilising existing institutions, arrangements and resources more effectively. The need for practical approaches is emphasised. A programme for improving Ghana's construction industry is formulated.

Suggestions for modification of current ideas on the construction industries of developing countries are made, especially the need for strategies to be country-specific and dynamic, the importance of a time perspective, and the usefulness of according orders of priority to particular measures, and concentrating on those easiest to implement, or with greatest linkage effects.

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LIST OF ABBREVIATIONS

The following are the abbreviations more commonly used in this thesis:

AESC	:	Architectural and Engineering Services Corporation
BHC	:	Bank for Housing and Construction
BRRI	:	Building and Road Research Institute
CBS	:	Central Bureau of Statistics
CEBCA	:	Civil Engineering and Building Contractors Association
DHPR	:	Department of Housing and Planning Research
GHA	:	Ghana Highway Authority
GDP	:	Gross Domestic Product
GNP	:	Gross National Product
ILO	:	International Labour Office
MDPI	:	Management Development and Productivity Institute
NCC	:	National Construction Corporation
NVTI	:	National Vocational Training Institute
PWD	:	Public Works Department
SEDCO	:	Small Enterprises Development Corporation
SSB	:	Social Security Bank
SCC	:	State Construction Corporation
UST	:	University of Science and Technology
UNDP	:	United Nations Development Programme

INTRODUCTION

I.1. Purpose

The purpose of this thesis is to make a contribution to existing knowledge of the construction industries of developing countries. It is an attempt to test the validity and appropriateness of the main themes of existing diagnoses of the problems of, and prescriptions for improving, the construction industries of the developing countries, and thereby propose necessary changes in present ideas or additional issues that need consideration in future.

I.2. History

This thesis was first conceived of as an attempt to formulate a set of theoretical principles on which the programmes for improving the construction industries of countries in developing Africa could be based. The intention was to conduct a survey of four of such countries' (Ghana, Kenya, Nigeria and Tanzania) construction industries, and to essay a blueprint for future action. The enormity of the task became apparent when the time and financial resources available were considered, and after some background reading and initial discussions with experienced academic and professional persons.

The study was, therefore, limited to Ghana, although in the course of the research the author was privileged to visit four other African countries for other purposes. Having read some literature on the issue of improving the construction industries of the developing countries, and being aware that Ghana has, in the past thirty years, tried to evolve an effective and efficient local industry, the author was intrigued to compare Ghana's experiences with existing ideas on the issue, and thereby develop basic principles that could be applied in other countries.

In earlier parts of the study it became clear that the problems

of the construction industry emanated, in part, from the industry's links with the economy, as well as from the nature of construction activity itself. It was also apparent that construction could not be isolated from the existing socio-economic, cultural and historical environment. Thus the field of the research was extended to consider the development process, and the characteristics of the construction industry and its role in development. Later, as the complexity of the problem became clear, the impossibility of formulating a blueprint for cross-country application became evident. Thus, the goal of the study became a country-specific programme for improving Ghana's construction industry.

I.3. Objective

The main objective of this thesis is to review existing approaches to the issue of improving the construction industries of the developing countries in the light of the experiences of Ghana between 1951 (when it attained self-governing status) and 1979, with a view to:

(1) ascertaining the similarity or otherwise between suggested measures and those implemented in Ghana in the period;

(2) assessing the success or failure of specific measures and identifying factors that supported or hindered their implementation;

(3) suggesting issues that need to be considered in future in Ghana and elsewhere; and

(4) formulating a detailed programme of action for Ghana's construction industry.

I.4. Methodology

The study comprised a literature review and field work. The review of literature was to provide the author with a background understanding of economic development theory, appraise him of the various

writings on the subject of improving the construction industries of developing countries, and provide a detailed knowledge of Ghana's socio-economic history, and its construction industry. Since little published academic works on Ghana's construction industry exist, most of the references were from technical journals, magazines and newspapers. These reinforced the author's intimate knowledge of the country and its industry.

The field work involved a detailed on-the-spot survey of Ghana's construction industry. This was undertaken between 2nd March and 31st May, 1979. A questionnaire was compiled to help in interviews of and discussions with persons in the construction industry or in positions related to it. A report on these and copies of the questionnaire are included in Appendix B. Similar studies were conducted by the author in Swaziland, Malawi and Botswana for a different purpose.

1.5. Outline

The thesis is in five closely-related parts, the objectives of each of which are as follows: (See also Fig. I.1).

1.5.1. Part I: Development Theory, is to:

(a) enable the underdevelopment of the construction industries of the developing countries to be placed in a wider perspective;

(b) outline the evolution of ideas on development and thereby show how development theory has been non-homogeneous, and has changed over the years, as experience has invalidated certain views; and

(c) ultimately, show the need for country-specific programmes based on each nation's peculiar conditions and resources.

Though the study of the socio-economic development of the world's poor areas is only about a generation old, it has become a specialised field on which a huge store of literature exists. The purpose in this thesis is only to summarise some of the most important ideas and theories.

The examples are mainly from English-speaking West or East African countries with which the author is personally familiar or on which he could obtain information.

I.5.2. Part II: Construction and Development, is to:

(a) briefly consider the nature of the construction industry, particularly its product and its peculiar features;

(b) show the role construction can play in development, the effect of construction on development strategy, and the implication for construction of various types of development strategy;

(c) theoretically consider the nature of the problem of improving the construction industry, show the complexity of the issue and the persistence of constraints on the construction industry in all countries;

(d) analyse the construction industry structurally, and obtain a useful matrix for further discussion;

(e) outline existing strategies for improving the construction industries of the poor countries and show the relationship between them and those for general socio-economic development, and hence the inappropriateness of some of the approaches; and

(f) generally, point out some of the inadequacies of existing strategies and formulate a 'synthesis' composed of the most important and most common proposals for use in assessing the experience of Ghana.

I.5.3. Part III: Ghana as a Case Study, is to:

(a) show that since 1951, Ghana has tried to implement most of the measures prescribed in existing strategies for improving the construction industry in the poor countries;

(b) demonstrate that the problems of the industry go deeper than is usually supposed, and tend to reinforce one another, and jointly

frustrate attempts to alleviate them: and

(c) point out that implementing the strategies leads to additional, sometimes more difficult problems, and that, like development, improving the industry is an intractable issue which gets more complex the further a nation progresses in that sphere.

At the end of each chapter (in the conclusions) the issues that need particular attention in the future, in Ghana as well as in any country in a similar position, are outlined.

I.5.4. Part IV: A Programme for Ghana, is to:

(a) consider the nature of the task of developing Ghana's construction industry; and to show that there is the need for a time-based approach, conditioned not only by the length of time it takes for particular measures to bear results, but also by the resources that are likely to be available in each period: short-, medium- or long-term;

(b) Identify the most important measures and place them in order of priority, considering the ease of implementing them, the linkages that each has with the others, and hence the success or failure of each for the others. Show that contractor development merits top priority because it calls for local resources, has the greatest number of linkages with the others, and will sooner or later, need to be attended to, anyway; and

(c) formulate, in detail, a programme for improving and developing Ghana's construction industry.

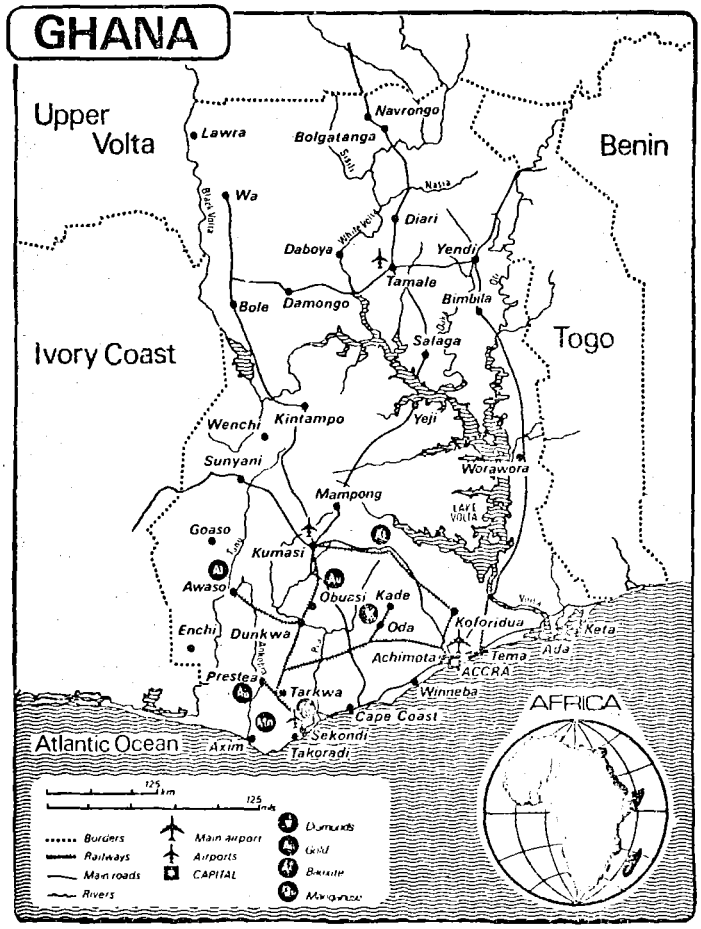
I.5.5. Part V: Lessons for the Future

is a concluding chapter summarising the main points raised, suggesting changes that need to be made in current ideas on the construction industries of the developing countries, and briefly outlining issues that need to be considered in any attempt to formulate

a programme for the improvement of the industry in Ghana and elsewhere, while emphasising the need for country-specific strategies.

1.6. A Brief Note About Ghana

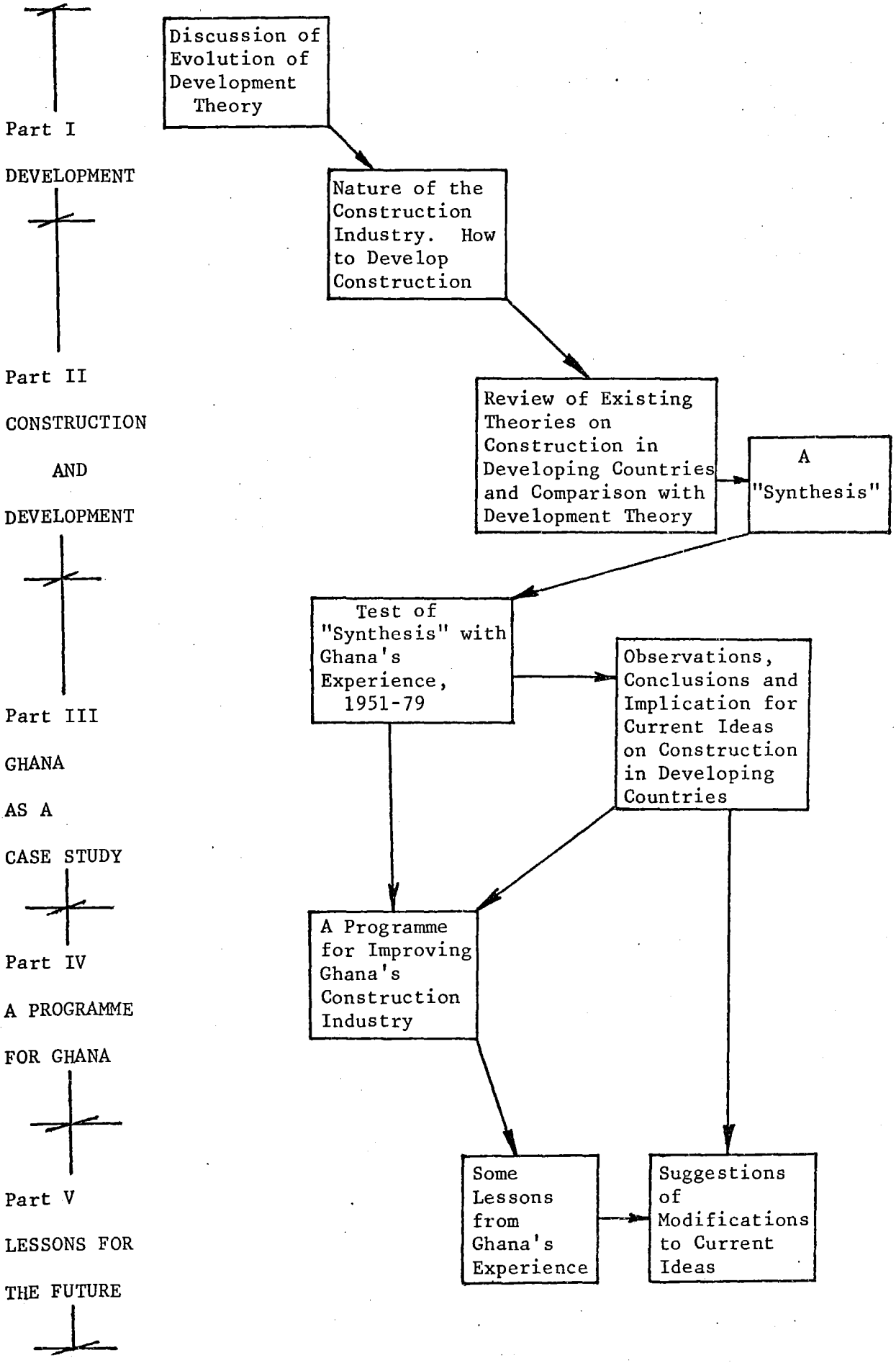
Ghana is situated on the west coast of Africa. It has an area of about 239,000 square kilometres (92,000 square miles), and a population of about 10 million (1970 census: 8½ million). It is divided into eight administrative regions. The capital, Accra, has a population of over 700,000. The official language is English. Ghana has had an eventful political history since it attained independence from Britain in 1957.



It has a tropical climate with two main seasons: the dry November to April, wet May to October. The north of the country, with low rainfall, is low-lying grassland; the rest of the country is covered mainly by tropical forests.

The main exports are cocoa, timber, gold, diamonds, bauxite and manganese. The country has a mixed economy; the public sector is particularly active in the secondary sector. Ghana is formally classified as a developing country: its gross domestic product per capita in 1974 was about 200 United States dollars. Since the 1950's the country has endeavoured to create an effective construction industry. Thus it suits the purpose of this thesis.

FIGURE I.1: Diagrammatic Representation of Outline of Thesis



PART ONE

DEVELOPMENT THEORY

CHAPTER 1

DEVELOPMENT

"More, further, quicker, richer, are the watchwords of present-day society ... (and we must help people to adapt) for there is no alternative."
- S. Mansholt, former head of the European Economic Community, quoted in E.F. Schumacher, Small is Beautiful, Abacus, 1973, p. 129.

"Economic development and cultural modernisation do not mean bliss: (a) they end forever the physical misery of famine, epidemic disease and early death; (b) they change the quality of material, social, political and spiritual life ... (c) but the material and cultural advances bring with them new problems at all levels, private and public: urban slums and unemployment, political factions and pollution."
- G. Dalton, Economic Systems and Society, Penguin, 1974, p. 218.

1.1. Introduction: The Need for Development

The standards of living enjoyed by peoples in various part of the world differ considerably, and the rates at which these conditions are changing are also different. The inequalities threaten to be self-perpetuating since most of the less developed countries also lack the resources required to improve their situation. Various criteria are used to assess 'development (see 1,3), and the world is divided into 'rich' and 'poor' or 'developed' and 'developing' nations.

The poorer peoples constitute over two-thirds of the world's population, and, in the main, live in the southern hemisphere, in Africa, Southern America and Asia. The prospect of global conflict between the numerous poor and the few rich was one of the factors which drew attention to the need to improve the lot of the less privileged.[1] Intellectuals of the developed nations, spurred on by the ethical consideration that the welfare state need not end within the boundaries of their countries, began to theorise on the problem of improving the lot of the peoples of the poor countries.

On the political front, the desire of each of the leading countries of the ideological divide to find favour amongst the poorer countries led them to concern themselves with the issue of development. The success of the Marshall Plan, which rebuilt the economies of war-shattered Europe, showed that foreign capital could improve the circumstances of peoples in other lands, and, therefore, that poverty should not be the inevitable lot of any group of people. At the same time, improvements in global communications made the disparities in standards of living more evident to both the rich and the poor. This awareness

> "... makes the poorer nations envy the rich, ask them for aid with varying degrees of humility or arrogance, and even on occasion profess to despise them for their materialistic values. At the same time, the richer nations alternate between ... sincere attempts to assist the poorer, and a bewildered exasperation in which they wish the less successful peoples would either adopt the practices of the wealthier or else accept their inferiority ..."[2]

The attainment of independence in the 1950's and 1960's, of a large number of poor countries, their inclusion in the United Nations, and other international bodies, and frequent references by their leaders[3] to the issue, have kept it in the limelight for several years.[4] In the 1970's the development of the emergent nations has been seen as a way of helping the industrialised countries out of their economic recession. Thus development has changed from being an issue of making the poor countries less so, to one of mutual concern and benefit to all countries.

1.2. Development Effort

Efforts to attend to the needs of the peoples in the less privileged parts of the world have been made at both the national and international levels.

Within the poor nations, the awareness of the gap between them and the developed countries, a public opinion eager for rapid change, and the conviction that it was possible for improvements to be made, led

the governments to embark on programmes which would result in considerable progress. These were pursued with determination and tenacity. President Nyerere (1964) said:

> "Development must be considered first, and other matters examined in relation to it. Our question with regard to every matter - even the issue of individual freedom - must be, 'How does this affect the progress of our Development Plan,'"[5]

Among scholars of the developed countries the issue spawned a store of academic writings. The reasons for poverty and underdevelopment were diagnosed, and models for economic growth in these areas formulated. (See Chapter 2). Zolberg (1962) wrote:

> "The possibility of bringing about rapid development is ... axiomatic. It stems from a genuine faith in man's ability to rationally control his human and physical environment. Operationally, this takes the form of planning."[6]

The emergent countries adopted economic planning as a sort of solve-all. In these plans they established targets, identified projects, indicated sources of funding and other resources, and outlined strategies for achieving better standards of living for the populace.

> "... an economic plan became the characteristic vehicle of development policy .... A plan was the indispensable passport to foreign aid, the touchstone of rationality and domestic efficiency .... Essentially the rationale of the plan was to mobilise economic resources and deploy them on cost-benefit criteria to projects with optimal effects on economic growth rates and structures."[7]

On the international scene, economic and technical aid has been given to the developing countries by the richer ones, on an unprecedented scale, in the past three decades. Concern for the issues of development at the global level was symbolised by the declaration by the United Nations, of the 1960's as the First Development Decade, the aim of which was:

> "... to attain in each underdeveloped country a substantial increase in the rate of growth, with each country setting its own target, taking as the objective a minimum annual rate of growth in aggregate national income of 5 per cent at the end of the Decade."[8]

As a result of these and other efforts some changes have occurred

in the economic and social conditions of the developing countries but, compared to the promises made by governments, targets set by planners, the potential outlined in existing theories and the expectations of the people, the record has been disappointing. Hirschman (1979) states that:

> "A full generation has now elapsed since 'mankind' took up the problem of development of the less developed countries; but its 'solution' in any meaningful sense of that term, still eludes us, as basic human needs remain unfulfilled for large masses of the third world and while elementary human rights are often disregarded or totally suppressed."[9]

Over the years, as experience invalidated prevailing theories and ideas, new concepts and approaches were proposed, only to be succeeded, after a while, by others. Emphasis has shifted from one factor to another as the most important condition for development. The very definition of the word 'development' has been elusive, and what were considered adequate measures of development have changed with time.

1.3. Definitions of Development

1.3.1. Introduction

On what basis is the categorisation of countries into 'developed' and 'developing', as the terms have been used above, made? Economists see the development process as a way of offering a degree of material well-being to the populace. Attempts to define the term have been made by social scientists from various disciplines,as well as by administrators and politicians over the years. Starting from simple economic assessments, the word has been used to refer to change in a wide range of attributes in a society.

1.3.2. Growth of the Gross National Product

The most common measure of development is the size of the gross national product (GNP) per head of population. By this definition, the developing countries are low-income countries, and development is said to have taken place when there is an increase in GNP per capita.

This approach has been questioned because of the doubtful veracity of international comparisons of per capita GNP[10], and also on moral grounds: its treatment of people as a dividend (and the smaller the dividend, the larger the quotient) is said to degrade humans, neglect the quality of the population and discourage investments aimed at improving social welfare. Growth alone is considered inadequate since it may be disruptive or destructive, and might benefit only a few. Earlier assumptions that growth would rapidly trickle down to the poor proved unreasonable[11]. Economic expansion in several developing countries led to industrialised urban centres and an affluent few emerging and remaining, for long periods, in a predominantly traditional society (dualism). Measuring development with per capita GNP also neglected the unequal distribution of incomes within the poor countries themselves.

In some places growth had been achieved at the expense of individual human rights (eg South Korea). The concept of development came to be synonymous with "growth with equity"[12]. Malta's Development Plan of 1973-80 states that:

> "... growth of the GDP is neither the appropriate aim nor an adequate measure of real development. It does not necessarily reflect changes in the quality of life, improvements in education, the diversity and satisfaction of work, increased social equality or greater national cohesion and independence .... The test of success of the Plan is not the attainment of some particular growth rate but whether the basic-felt needs of the mass of the people, and especially the poorest and least fortunate have been met."[13]

1.3.3. Standard of Living

Qualitative economic definitions of development stressed improvements in the standard of living of the people. Elkan (1973) suggests that it is:

> "... a process which makes people in general better off by increasing their command over goods and services and by increasing the choices open to them."[14]

Thus development could be measured in terms of consumption, the supposition being that one who consumes more should be better off than one who does not. The attributes of a developed society were identified, such as: energy production and consumption; cement, steel, etc. consumption; number of telephones, radios, television sets, cars, etc. per capita; access to doctors, relative number of hospital beds; and percentage of literates in the population[15].

The level to which a country had developed was not only determined by these criteria but also a minimum level of each major item was established as a basic requirement for sustained growth. This approach was criticised for its neglect of the several different methods of production for each item and the diversity of patterns of consumption in different societies. Wallman (1977) points out that:

> "... efforts to improve conditions in underdeveloped or developing countries continue to assess that improvement quantitatively - more is good; growth is progress ; and to rate each area in terms of its shortfall from some implicit 'developed' goal - we set the objective which they have failed to reach."[16]

The superimposition of rich-country models on developing countries in different circumstances are now considered inappropriate. Furthermore, increasing awareness of the finiteness of the world's resources and the environmental problems associated with modern technology has led to widespread criticism of a consumption approach to development[17].

1.3.4. Industrialisation

Many authors used to equate development with industrialisation. Morris asserted in 1965 that:

> "Most of the experts agree ... that the impetus of economic development must be towards new industries, new sources of power, a spread of urban living ... by and large the difference between a rich nation and a poor one is the difference between a mechanical and a muscular society."[18]

For several years there was controversy over the role of industrialisation in development. One school of thought was of the opinion that it should

be the vanguard of the process, and another school believed it should follow, not precede, agricultural expansion.

The developing countries themselves seemed to favour the first school, and many of them have attempted to move from a basically agrarian to an industrialised society[19]. This was encouraged by the success achieved in the old countries in their industrial revolutions, the higher status of industrialisation as an indication of progress, and the falling prices of primary goods on world markets. Whereas a few have succeeded (for example, Hong Kong, Singapore, South Korea and Japan), others have made little headway, and some have had bitter experiences (idle factories; high-cost, poor quality goods; and inadequate personnel). Increasing protectionism[20] and the non-availability of the mainly foreign inputs needed for a major drive of industrialisation, further limit the potential of this apporach to development. If a country has comparative advantage in agriculture it is unwise to suggest a shift away from it; the need may be for more productive species, better methods of production, incentives and marketing systems.

> "In principle ... the role of industry in development is not a question of industry first or agriculture first. It is a question of finding the right mix for a particular country at a particular time. Any generalised, absolute priority for either sector is theoretically nonsense. Countries that have attempted crash programmes for industry have run into recurring food shortages and agricultural crises which have forced them to go back and attend to their agriculture, before going on with their industrialisation."[21]

1.3.5. Non-economic Factors

Sociologists and anthropologists consider development as a process in which the human being and the social environment in which the economic activity takes place are transformed. Social development produces improvements in education, health, nutrition, clothing and security, and makes available a better quality of working population. Thus there is a causal-consequential mutual relationship between social

and economic development[22].

This relationship was not recognised by economists in the past who considered social investment as a drain on resources which could be employed on directly productive projects. Better understanding of development has led to the introduction of attributes other than economic. Curle (1970)[23] suggested that, in addition to a degree of affluence, individuals in a developed society should have qualities such as security, sufficiency, satisfaction and stimulus.

Other measures of the level of development along such lines have been proposed. For example, Adelman and Morris (1967)[24] considered a number of economic, social and political factors.

This issue creates a dilemma. Industrialised societies are often plagued by insecurity, boredom, loss of self-respect, delinquency, air pollution, traffic congestion and decaying city centres[25], whereas some poor traditional societies enjoy stability, tranquility and simplicity, albeit in an atmosphere of poverty and ignorance. This is resolved by outlining the difference between traditional life close to nature and that of a simple and romantic life chosen by a person or group disillusioned by some aspect(s) of modern urban life. The former has no alternatives but the latter does.

1.3.6. Perceptions

'Development' refers to the socio-economic well-being of the people in a society but each society has its own values, and one group's idea of progress may be different from those of another. As Busia (1971) warned:

> "... the good life ... may be differently conceived in different cultures, or aspects of it be given different emphasis; it is for governments and planners .., to seek to understand the concepts of the good life which they seek to help their people to realise. It is a common experience that there are values for which people are ready to sacrifice material efficiency, as this may be calculated from rationalised economic considerations."[26]

Therefore, the definitions of development may be as numerous as there are communities in the world. Even amongst members of a group, Wallman and others (1977) found that:

> "... it is normal for members of even the most unitary and cohesive group to have different perceptions and contradictory expectations of development, and for them to alter these perceptions and expectations with time and situation."[27]

1.3.7. Yardstick

Thus, by what yardstick does one measure development? What is progress? The above discussion has shown that such a universally acceptable yardstick is conspicuous by its absence. However, it would be unwise to deprecate attempts to formulate such indices since a basis is needed for decision-making. It is undeniable that large numbers of people in certain parts of the world have not benefited from the technological advances made by mankind. Abject poverty, malnutrition, and disease is the lot of many of these peoples. The developing countries are those the majority of whose peoples fall into this category. By and large, the classification of countries into 'developed' and 'developing' by the United Nations is acceptable to the countries themselves, and this thesis uses that basis.

1.3.8. Non-homogeneity

It is not correct to refer to a homogeneous group of developing countries since even these are at various levels of development and have different natural and human potentials. The various countries face problems of different intensities and magnitudes, even if of the same kind, and their socio-cultural and institutional settings are not the same. At present, oil-rich developing countries are differentiated from the non-oil ones, and the poorest 25 countries are also usually separated from the others. A so-called "Fourth World" has been hypothesised.

> "Upper Volta's per capita income is just £25. The poverty gap between these so-called fourth world countries and a third world country like Zambia is as great as the difference in wealth between Zambia and one of the Western countries."[28]

1.4. Reasons for Underdevelopment

1.4.1. Introduction

Attempts have been made to explain why some parts of the world have not progressed with, or as much as, others. Based on the experience of the developed countries, certain factors determining or sustaining socio-economic advancement were identified, and it was first thought that these 'missing factors' only needed to be introduced into the underdeveloped areas for remarkable growth to occur. Models were formulated and applied which were not only criticised at the time, but proved inadequate or inappropriate in practice. Development experience in the last thirty years has led to major revisions in the ideas about the process. Some of the reasons ascribed to retarded development are now considered.

1.4.2. The Role of Capital

One of the earliest views on the lack of development was that such countries were trapped in a series of interconnected vicious circles of poverty and economic stagnation. Nurkse (1953)[29] suggested that one of these circles was that poor people have low productivity, low incomes, low savings, and therefore they invest little, the low level of investment means little development, and leads to continued poverty.

According to Nurkse, the only way to promote development was to break into this vicious circle by providing foreign investment capital, which would start a process of self-sustaining growth. Rostow's (1960)[30] analysis of the stages of economic growth also showed that foreign capital could raise developing economies to the 'take-off' stage.

Critics of these views pointed out that most of today's developed nations started with low per capita incomes and low accumulated capital, and advanced without external capital. Other writers emphasised a number of interrelated economic, social, political and cultural factors to be as important as, if not more important than, capital. At the other extreme of the argument, Baran (1952)[31] stressed that the political power structure in poor countries hindered productive investment, and that foreign capital would reinforce the socio-political systems hostile to development.

In recent years, capital has come to be considered as "a necessary but not a sufficient condition of economic development"[32]. Although some countries have made some progress with the help of foreign capital (for example, South Korea and Singapore), Schiavo-Campo and Singer (1968) wrote that:

> "... data seem to suggest that important though the role of capital undoubtedly is, lack of sufficient savings probably has not constituted a major bottleneck for many developing countries, and that other constraints are, under the economic conditions currently prevalent in many developing countries, relatively more limiting than the saving constraint."[33]

That rapid development has not taken place in the oil-producing states despite massive growth in their national earnings since 1973 underlines the importance of issues such as entrepreneurship, executive capacity, innovation, technology, education and institutions, to which attention has been drawn.

1.4.3. International Trade

Classical economic theory teaches that international trade based on comparative advantage would be beneficial to all participating nations. Development would, after a time lag, be spread to all nations.

Some writers questioned this, and suggested that development in a part of the world tended to impoverish other parts ('backwash effect'). Thus, Myrdal (1963) believed that increased world trade would further

"... strengthen the forces maintaining stagnation or regression"[34]. Prebisch (1960)[35] found long-term disparities in the demand for manufactures and primary products. The former tended to have high income elasticities in developing countries, whereas the latter had low income elasticities in developed countries. Similar findings by Frank (1967)[36] led to calls for delinking of economies. Developing countries were advised to move from the production of primary goods into manufacturing (import substitution followed by export of manufactured goods).

These views were not universally accepted. Bauer suggested that were they to be true,

> "... there would, for centuries past, have been only one developed country constantly increasing its lead over the others."[37]

World trade has enabled countries like Japan and Hong Kong to progress, and has improved the lot of peasant farmers in places such as Ghana, Kenya and the Ivory Coast. Moreover, MacBean (1966)[38] found that over the period 1946-58, fluctuations in export earnings were not confined to primary producers, but also affected industrialised countries. He concluded that, although poor countries have less stable export earnings than the average developed country, the difference is not large.

The argument as to whether developing countries benefit or suffer from their coexistence, links and trade with developed ones is still unresolved. Efforts to maximise the benefits, however, are evident in the workings of producer organisations such as those for oil, cocoa, coffee and copper, international groupings like the Group of 77, the African, Carribean and Pacific Countries (ACP) affiliated to the European Economic Community, and international fora such as the sessions of the United Nations Conference on Trade and Development (UNCTAD), and meetings on the so-called New International Economic Order (North-South dialogue)[39].

1.4.4. Colonial Exploitation

The lack of development in some poor countries is sometimes attributed to their historical background. Many of them were colonies, and as Hobson (1938)[40] and Baran (1952)[41] suggested, the acquisition of territories by imperial powers had basically economic motives: access to raw materials, cheap labour, land and additional markets.

The effects of colonialism are illustrated by the experience of the African continent, all of whose more than fifty countries except two (Liberia and Ethiopia) were colonies for centuries. Until the late 1950's, Africa did not exist economically: it was

> "... a prolongation of European economies ... the colonial powers ... would not process the raw materials and did not industrialise."[42]

The physical infrastructure was created with the objective of promoting the exploitation of natural resources and agriculture. Thus roads and railways linked main mining or agricultural districts to harbours. Industrial and commercial activity was foreign-controlled, and did not benefit the local population much. For example, a Committee on African wages in Kenya (1954) reported that:

> "... approximately half of the urban workers in private industry and approximately a quarter of those in public services, are in receipt of wages insufficient to provide for their basic, essential needs of health, decency and working efficiency."[43]

Profits were repatriated abroad[44] and social services were neglected, a point made evident by developments in the field of education. By 1959, the 24 million people in British East Africa - Kenya, Tanganyika and Uganda - could together achieve no more than 2000 school certificate students[45], and Zaire had only 17 university graduates at the time of its independence[46]. Moreover, the aim of education was:

> "... to train those who will serve the system and acquire its values in the process. In so doing it establishes a sort of elite widely separated in sympathies and aspirations from the stock from which it arose."[47]

Colonialism also entailed some social disruption: rather than build on the existing social system, it created a new order and established new values. Students of the process have stressed that the institutions of colonialism planted the seeds of their own destruction. They:

> "... created an unstable paradox by importing modern educational systems, by rationalising the bureaucratic systems of their territories, by introducing taxes, exportable cash crops and a general cash economy, while, at the same time, the expatriate administrators upheld racial and social discrimination, supported ... economic exploitation, and in the main lived a life which was certain, in its material superiority, to create envy and frustration among the colonialised peoples."[48]

The balkanisation of the continent left Africa with a legacy of over 50 states with different areas, sizes of population, different degrees of natural endowment, and different preferences and allegiances[49]. The polarisation is increasing: there is little trade among the nations, no effective transcontinental transport or communication and a multiplicity of monetary systems. Fordwor (1978) asserts that of the West African countries,

> "It is a fair observation to make that, with the possible exception of Nigeria, none ... has a potentially large-enough market to make the thought of developing each state into a self-sustaining and independent economic unit a realistic idea."[50]

The Economic Commission for Africa advises African countries to conceive development schemes on a regional basis[51].

Whether the poor countries would have fared better if they had not been through a period of colonisation is uncertain. There are countries (such as Liberia and Ethiopia) which have remained underdeveloped although they have been free for most of the past century and a half. Furthermore, the colonial era saw the ending of inter-tribal wars, the establishment of bureaucratic administrations, the opening up of new economic ventures and the widening of individuals' horizons. Again, the various metropolitan powers had different colonial policies, and their

impact on the indigenous peoples and the basis for future development they created were not the same. Therefore, whereas it is important to remember the historical background of the developing countries, their present poverty cannot be wholly attributed to colonialism.

1.4.5. Entrepreneurship

A nation cannot make any headway in the development process unless its people are willing and able to apply their energies and skills to productive use. Nigeria's Development Plan of 1962-8 stated:

> "Governments may govern, economists may plan, administrators may organise, but ultimately the execution of all plans, no matter how well designed and intentioned, depends upon the resources of the people themselves."[52]

Some writers stressed that human entrepreneurship was the vital factor in development. Schumpeter (1939)[53] saw the development process as one in which entrepreneurs put innovative ideas to practical use. Thus the rate at which a country could develop was determined by the number of entrepreneurs it had. McClelland (1961)[54] attributed the lack of development in parts of the world to the absence of what he referred to as "the need to achieve" in the peoples. Hagen (1964)[55] blamed the low propensity to develop in the emergent countries on the authoritarian nature of the early childhood training of their 'traditional' societies, in many countries ethnic minorities exhibited considerable entrepreneurial ability. Hoselitz (1957)[56] ascribed this to feelings of insecurity, engendered by their minority status, which spurred them on to economic achievements in order to attain equality.

Discussions of the Schumpeter thesis embraced arguments on the role of governments in development. Views on this were ideologically polarised, most writers conveniently ignoring the reality that no economy was completely devoid of government intervention, and that every country had a measure of individualism or applied some aspects of the market economy.

McClelland's and Hagen's theories could not explain the spontaneous surges of entrepreneurial activity in Japan, Philippines and Pakistan when conditions were right. Studies revealed that entrepreneurship existed in the developing countries but was confined to non-industrial activities in which risks were less and profits quicker[57]. It has also been realised that factors conducive to entrepreneurial activity need not be the same in different societies. (See Chapter 15).

1.4.6. Socio-Cultural Factors

The social institutions and traditional values of the indigenous peoples of the poor countries were considered to be obstacles to development. These systems were thought to be resistant to changes that were necessary for productive effort and an industrialised society. The nature of the societies of the developed countries was altered with socio-economic and technological advancement; short-run economic gains, materialism and individualism were believed to be some of the bulwarks of their progress. Critics against this trend were dubbed romantic, idealistic or eccentric[58]. Curle (1970) stated:

> "The high production economies are built upon the ruins of the extended family and of the complex network of values which had given it continuity ... we can view this as a release from a form of tyranny, a freeing of man's energies and desires from the deadweight of tradition which has enabled him to reach great heights."[59]

Social scientists wrote volumes on the socio-cultural factors that tended to hinder development. On the other hand, studies showed that traditional societies were supportive of progress, and that rapid change was destructive. Extended families were found to provide social insurance and act as spurs to individual achievement, or as buffers in times of failure. The experience of Japan has shown that it is possible to utilise and enhance traditional values in development. That Japan has not witnessed social problems on the scale of many Western countries indicates that such an approach is also useful. With the realisation that

> "... so-called traditional societies prove to be as flexible as any others, given sufficient economic incentive, and as adamant as any other when it is lacking ..."[60]

The calls for institutional changes abated[61], and attention was focused on ways in which the influences of traditional systems could be harnessed to support development and gradual adaptation.

1.4.7. Administration and Education

The early emphasis on capital and elaborate economic planning came to be modified, as problems were encountered in the implementation of development schemes. Administrative difficulties were not only due to the insufficiency of qualified and experienced personnel but also to inter- and intradepartmental problems such as unwillingness to delegate authority, lack of cooperation, rivalries (personal and departmental), red tape, delays and confusion. With the awareness that development would increase the scale of activities, it was apparent that the administrative difficulties would be exacerbated. Attention shifted from 'physical' to 'human' capital as the basic requirement for development[62].

Investments in schemes to enhance executive capacity, which had been termed 'unproductive' came to be incorporated in development plans. Education became important: earlier emphasis on numbers created problems of a different nature; unemployed, educated youths flocked to the urban areas. Attention came to be focused on the nature and content of education, the importance of inculcating attitudes suitable to mutual understanding, and the relation of education and training to the country's particular needs[63].

1.4.8. Other Factors

Other reasons why some countries are underdeveloped have been proposed. Galbraith (1961)[64] suggested that, in addition to capital and

skilled personnel, at least four of the basic requirements for socio-economic development were: a literate population with some highly educated people; a high measure of social justice; a reliable apparatus of government and public administration; and a clear and purposeful view of what development involves.

Social justice is considered by others not only as an attribute of a 'developed' society, but a motive force to progress. Pakistan's Five Year Plan of 1957 stated:

> "The energies of the cultivator will not find full scope unless the fruits of his labour are guaranteed to him. He must be roused by a sense of ownership in the land and its fruits to enable him to do the utmost of which he is capable. He must be enabled to use the fruits of his labour for his greater comfort and higher social status."[65]

Land reform, joint ownership of property, individual freedom, and at the extreme, radical social revolution by the masses are considered by various authors to be determinants of development.

The virtues of particular political systems are also often extolled. Almond and Coleman (1960)[66] applied eleven criteria of development to 66 developing countries classified politically as competitive, semi-competitive and authoritarian, and found the average score of the competitive category to be greater than that of the semi-competitive, and that of the semi-competitive to be better than that of the authoritarian in nine out of the eleven criteria. Thus democratic systems appeared best suited to development. On the other hand, some writers and politicians stress the divisiveness of democratic systems, their inappropriateness to the environments of the developing countries, and their failure in many of the countries[67]. A Sierra Leonean Member of Parliament said in 1965:

> "The British government was under a one-party form of government during the last world war, when it became apparent and necessary to fight against the common foe - German tyranny and fascism. Therefore, it is just but simple and logical that we must bury our hatchets, and unite to fight our common enemies which are poverty, disease, hunger and ignorance."[68]

To other writers, what was important was neither ideology nor the nature of the political system but the quality of the government. Kaldor (1965) suggested that:

> "The wealth or poverty of a country ... is determined more than anything else by the existence over long periods of good or bad government. Especially is this true of underdeveloped countries where the state generates and organises modern economic activities for lack of private institutions to do so."[69]

It is clear that governments and planners should ascertain, and try to give expression to, the needs and desires of the majority of the populace. Only then will a practical strategy of development be formulated. The successful implementation of such a programme would depend as much on the commitment and guidance of the government as on the enterprise and enthusiasm of the populace.

1.5. Conclusion

The study of the problem of developing the poorer areas of the world is now about thirty years old. Ideas on the issue have been controversial, and starting with economists, attracted contributions from other social scientists, administrators and politicians. The understanding of the process of development has been enhanced by the experience of the last generation but its precise definition is still elusive. The factors thought to be responsible for underdevelopment have been well discussed, as have those which were considered necessary for development. The problem has been found to be more complicated, far-reaching and dynamic than was thought, and to be of a nature which calls for a multi-disciplinary and multi-faceted approach.

1.6. Notes and References

1. Some studies showed that development would lead to falling rates of population growth. See for example, Leibenstein, H., Economic Backwardness and Economic Growth, Wiley Science Editions, 1963, Chapter 8. Thus development would also avert a global population explosion.

2. Barbour, K.M. (ed), Planning for Nigeria, Ibadan University Press, 1972, p. 1.

3. Addressing the Summit of African Heads of State in Addis Ababa, Ethiopia in 1963, President Nkrumah of Ghana said:
   "It is said, of course, that we have no capital, no industrial skill, no communications and no international markets, and that we cannot even agree among ourselves how best to utilise our resources. Yet all the stock exchanges of the world are preoccupied with Africa's gold, diamonds, uranium, platinum, copper and iron ores. Our capital flows out in streams to irrigate the whole system of the Western economy. Fifty-two percent of the gold in Fort Knox ... at this moment, where the U.S. stores its bullion, is believed to have originated from our shores."
   Quoted in Davidson, B., Which Way Africa. The Search for a New Society, 3rd Ed., Penguin, 1971, p. 58.

4. The international bodies dealing with development issues have proliferated. By 1978, the United Nations Organisation was devoting 85 per cent of its staff and financial resources to economic and social development.

   United Nations Today: Suggestions for Speakers on U.N. Day, 24 October 1978, U.N., New York, 1978, p. 64.

5. Nyerere, J.K., Opening the Dar es Salaam University College. Ministry of Information and Tourism, Dar es Salaam, 1964, p. 17.

6. Zolberg, A., Speaking at a Colloquium in Dakar, Senegal in 1962. Quoted in Dean, E., Plan Implementation in Nigeria: 1962-66, Oxford University Press, Ibadan, 1972, p. xv.

7. Robinson, R., Practical Politics of Economic Development, in Robinson, R. (ed), Developing the Third World: The Experience of the 1960's. Cambridge University Press, Cambridge, 1971, p. 1.

8. United Nations General Assembly Resolution 1710 (xvi). The 1970's were declared the Second Development Decade.

9. Hirschman, A.O., Preface to: Towards a New Strategy for Development, A Rothko Chapel Colloquium, Pergamon Press, New York, 1979, p. xv.

10. See, for example, Samuelson, P.A., Economics, 10th Edition, McGraw Hill Kogakusha, Tokyo, 1976, pp. 195-197, for difficulties involved in measuring GNP; and Bhagwati, J., The Economics of underdeveloped Countries, World University Library (Weidenfeld and Nicolson), London, 1971, pp. 12-16, for problems with international comparisons of GNP per capita.

11. Meier (1971) states that: "We must ... realise that the course of development has been highly uneven and has perpetuated or accentuated a number of inequalities. Even within the countries that have good overall records, there has been relatively little

progress in removing the inequality of income and wealth between the very poor 95 per cent and the very rich 5 per cent of the population." - Meier, G.M., Development Decade in Perspective, in Robinson, R. (ed), op. cit. (ref, 7), p. 19.

The International Labour Organisation's missions to Colombia,Kenya, Sri Lanka and a number of other countries found massive unemployment despite growth in GNP.

12. A common criticism of the GNP per capita measure is that by averaging out incomes it fails to show the real size and nature of the problem, since an overwhelming majority of the peoples in the developing countries earn far below the national average.

See Bhagwati, op. cit. (ref. 10), pp. 17 and 20.

13. Government of Malta, The Development Plan for Malta, 1973-80, Office of the Prime Minister, Valletta, October, 1974, p. 52.

14. Elkan, W., An Introduction to Development Economics, Penguin, 1973, pp. 15-16.

15. See Coleman, J.S., 'Conclusion', in The Politics of the Developing Areas, Princeton University Press, Princeton, 1960, p. 532; and Meier, G.M., Leading Issues in Economic Development, 2nd Edition, Oxford University Press, 1970.

16. Wallman, S. (ed), Perceptions of Development, Cambridge University Press, 1977, p. 1.

17. There is a growing store of literature on the subjects of limits to growth and environmental consequences of industrialisation. For example, Schumacher (1973) wrote that: "We find ... that the idea of unlimited economic growth, more and more until everybody is saturated with wealth, needs to be seriously questioned at least on two counts: the availability of basic resources and, alternatively or additionally, the capacity of the environment to cope with the degree of interference implied." - Schumacher, E.F., Small is Beautiful, Abacus, London, 1973, p. 24.

18. Morris, J., Huddersfield: The Taste for Change, in Dale, E. (ed), Readings in Management, 2nd Ed., McGraw Hill, New York, 1965, pp. 443-4.

19. For example, Damachi (1978) asserts that: "... industrialisation, and rapid industrialisation, appears to be the approach which developing countries count on to bring them out of their state of dependence and underdevelopment." - Damachi, U.G., Theories of Management and the Executive in the Developing World, Macmillan, London, 1978, p. xi.

20. For example, not only do Western countries have high tariffs on imports of manufactures, but some have prescribed specific quotas for Japanese cars and electronic goods, and Hong Kong's and Taiwan's textiles, among other things.

21. Cambridge Conference Report, The Role of Industry, in Robinson, R. (ed), op. cit. (ref. 7), p. 71.

The unilineal approach to development has been criticised on several grounds, including historical evidence. It is clear that development in the older countries took several different paths:

"How quickly employment in agriculture declined, what entrepreneurial role the state played, how banking was organised, the role of foreign trade, the rate of investment and its financial sources, the extent of foreign borrowing - these varied greatly from country to country and from decade to decade." - Dalton, G., Economic Systems and Society, Penguin, 1974, p. 206.

22. Pjanic, L., Housing Problems in Developing Countries, in Nevitt, A.A. (ed), The Economic Problems of Housing, Macmillan, London, 1967, p. 192.

23. Curle, A., Educational Strategy for Developing Societies, 2nd Edition, Tavistock, London, 1970, pp. xii-xiii.

Wallman (1977) suggests, too, that: "... any compendium of criteria of development must include the sense of autonomy/authenticity/integrity - some measure of social appropriateness - as well as the increment of material resources." - Wallman, S., op. cit. (ref. 16), p. 3.

24. Adelman, I., and Morris, C.T., Society, Politics and Economic Development, John Hopkins Press, Baltimore, 1967.

Similar methods for assessing development have been formulated by (1) Baster and Subramanian (1966), which measures a "social profile index" using indicators of living standards like nutrition, education, health, housing and leisure; and by (2) Nordhaus and Tobin, whose "measure of economic welfare" considers on the plus side, psychic satisfaction from leisure, work done by housewives, and so on, and on the minus side, disamenities of modern urban life such as crime, pollution and ecological costs. Whereas these are desirable indices they are difficult to construct, and their attempts to monetise qualitative factors renders them vulnerable to subjective judgements on the part of the person measuring them. Their cross-country application is also limited since each society has its own estimation of non-material values. -
(1) Baster, N., and Subramanian, M., Aspects of Economic and Social Growth, United Nations Research Institute for Social Development, Report No. 1, Geneva, 1966.
(2) Nordhaus, W. and Tobin, J., Is Growth Obsolete? in 50th Anniversary Colloquium V. National Bureau of Economic Research, Columbia University Press, New York, 1972.

25. America, for example, still faces: "... (1) the existence of inequalities (for example, large pockets of poverty and under-education ... (2) the disproportionate political power held by certain privileged minorities combined with discrimination of under-privileged groups; (3) the lack of security, both 'elementary' personal security in the streets and social security in case of bad health or other personal misfortune; (4) the shortcomings in the quality of public services ...; (5) the deficiencies in the quality of the general environment, showing up in city blight and pollution; (6) a propensity to use modern technology for projects that promote national prestige rather than for improvement in the living conditions of human beings ..." - Lindbeck, A., The Political Economy of the New Left, Harper and Row, 1971, pp. 86-87.

In several instances, therefore, the advanced countries are still 'developing'.

26. Busia, K.A., Social Attitudes to Agriculture, in Robinson, R., op. cit. (ref. 7), p. 134.

27. Wallman, S., op. cit. (ref. 16), p. 49.

28. Hutchinson, A., Landlocked Desert Countries Share Fourth World Poverty, The Times, 30 June 1975, p. XII.

29. Nurkse, R., Problems of Capital Formation in Underdeveloped Countries, Oxford University Press, 1953.

    Nurkse also visualised another vicious circle linking poverty, poor quality food, physical weakness, low productivity and back to poverty. Yet another circle started from poverty to low level of aggregate demand, dearth of investment opportunities, little investment, and ended with poverty.

30. Rostow, W.W., The Stages of Economic Growth, Cambridge University Press, 1960. Rostow postulated a unilineal approach to development.

31. Baran, P.A., On the Political Economy of Backwardness, Manchester School of Economic and Social Studies, 20 January 1952, pp. 66-84.

32. Adler, J.H., Some Policy Problems in Economic Development, in Economic Development and Cultural Change, January 1961, pp. 118-119.

33. Schiavo-Campo, S. and Singer, H.W., Perspectives of Economic Development. Houghton Mifflin, Boston, 1968.

    The role of foreign capital in development, the factors that influence its flow, and its effect on developing countries have, together, become a specialised subject about which much has been written. There have been discussions of whether aid should be bilateral or multilateral, whether there should be more official or private investment*, and how the (usually conflicting) interests of the donor and the beneficiary can be reconciled**. Some writers consider it a form of neo-colonialism***, whereas others think it is indispensable to the poor countries and is also in the interest of the developed countries+. The details of the terms by which aid is granted have also been discussed++.

    * See Schiavo-Campo and Singer, p. 294; and Lord Balogh, Bilateral Aid, in Robinson, R. (ed), op. cit. (ref. 7), p. 229.

    ** See Robinson, R., The Case for Economic Aid, in Robinson, R., op. cit. (ref. 7), pp. 268-270.

    *** See Jalee, P., The Third World in World Economy, Monthly Review Press, New York, 1969; Dia, M., The African Nations and World Solidarity (trans. Cook, M.), London, 1962; and Toure, S., La Planification Economique, Conakry, 1960, p. 77.

    + See Robinson, R., The Case for Economic Aid, in Robinson, R., op. cit. (ref. 7), p. 268; and Report of the Brandt Commission, North-South: A Programme for Survival, Pan Books, 1980.

    ++ The staff of the World Bank criticised the U.S. government's insistence on human rights in countries requesting economic aid. - Vogl, F., World Bank Americans criticise U.S. Policies, The Times, London, 4 April, 1978, p. 17, col. 8; and the prescriptions that accompany aid from the International Monetary Fund have come under fire. See, for example Pieris, D., Developing Countries: The Problems that Won't Go Away (Report on an interview with Dr. G. Corea, Secretary-General of UNCTAD), The Guardian, 21 May 1980, p. 8. In this interview Dr. Corea regretted that aid programmes of some countries (notably Britain and the United States) were being curtailed.

34. Myrdal, G., Economic Theory and Underdeveloped Regions, Methuen, 1963, p. 54.

35. Prebisch, R., The Economic Development of Latin America and its Principal Problems, United Nations, New York, 1950.

    Note that studies by the United Nations Conference on Trade and Development (UNCTAD) showed that less than a tenth of the total export of developing countries consists of manufactures and semi-manufactures (excluding unwrought ferrous metals). - UNCTAD Secretariat, REview of Trade in Manufactures and Semi-manufactures (TO/10 and Supplements), October, 1967.

36. Frank, A.G., Capitalism and Underdevelopment in Latin America, Monthly Review Press, New York, 1967.

37. Bauer, P.T., International Economic Development, Economic Journal, Vol. 69, No. 273, p. 109.

38. MacBean, A.I., Export Instability and Economic Development, Allen and Unwin, 1966.

39. Unfortunately, none of these (with the singular exception of the oil producers' body (OPEC)) has achieved any concrete, lasting results. According to Mr. Shridath Ramphal, Secretary-General of the Commonwealth, "... in 1974 the United Nations General Assembly issued a call for a new, more equitable world economic order; a world order that did not stack the odds so heavily against the efforts of the poor countries to lift themselves from poverty. Four years later, all we have to show is a record of frustration in almost every initiative - failure of UNCTAD IV ..., of the Conference on International Economic Cooperation ... and of the Common Fund Negotiations..." - Not a Zero Sum Game, Interview published in Development Forum, Vol. IV, No. 8, September 1978, p. 1; See also Pieris, D., op. cit. (ref. 33++).

40. Hobson, J.A., Imperialism, 3rd ed., London, 1938.

41. Baran, P., op. cit. (ref. 31). See also Brown, M.B., The Economics of Imperialism, Penguin, 1974, for a review of writings on colonialism and neo-colonialism.

42. Economic Commission for Africa (ECA), Housing in Africa, United Nations, New York, 1965, p. 5.

43. Report of the East Africa Royal Commission, 1955, p. 209, quoted in Davidson, B., op. cit. (ref. 3)- p. 91.

44. A report on mining in the Gold Coast (Ghana) stated that: "... estimates ... appear to work out at something in the region of half of the export earnings [transferred abroad] in the mining field." - Government of the Gold Coast, Memorandum on Mining in the Gold Coast, Government Printing Department, Accra, 1951, p. 25, quoted in ibid. p. 127.

45. Ibid, p. 46.

46. Woddis, J., The Roots of Revolt, London, 1960, p. 234.

47. Basil Davidson, op. cit. (ref. 3), p. 136.

48. Nellis, J.R., A Theory of Ideology: The Tanzanian Example, Oxford University Press, Nairobi, 1972, p. 85.

49. Plummer, S.S., Political and Economic Barriers Remain After Colonial Past is Buried, The Times, London, 30 june 1975, Supplement p. II.

50. Fordwor, K.D., West African Economic Planning and the Need for Pragmatism, West Africa Magazine, No. 3202, 27 November 1978, p. 2368.

51. The Commission advises that: "... rational division of labour, which in turn reflect the uneven distribution of natural resources of the continent ... the artificiality of national boundaries ... stresses the need for conceiving economic development regions on a scale much beyond the present political boundaries." - E.C.A., op. cit. (ref. 42), p. 144.

    Lord Salisbury described the partitioning of Africa in 1885 thus: "We have been engaged in drawing lines upon maps where no white man's foot has ever trod; we have been giving away mountains and rivers and lakes to each other, only hindered by the small impediment that we never knew exactly where they were." - Quoted in Davidson, B., Africa in Modern History: The Search for a New Society, Allen Lane, London, 1978.

52. Federal Government of Nigeria, National Development Plan 1962-8, Federal Ministry of Economic Development, Lagos, 1962, p. 5.

53. Schumpeter, J., Business Cycles, McGraw Hill, New York, 1939.

54. McClelland, D.C., The Achieving Society, Van Nostrand, 1961.

55. Hagen, E.E., On the Theory of Social Change: How Economic Growth Begins, Tavistock, London, 1964.

56. Hoselitz, B.F., Non-economic Factors in Economic Development, American Economic Review, Vol., 47, 1957, pp. 28-41.

57. See, for example, Bhagwati, J., op. cit. (ref. 10), pp. 79-87.

58. Such as the Owenites - followers of Robert Owen in England in the early nineteenth century.

    Galbraith (1968) suggests that the developed countries ignored certain issues until sufficient economic growth had been achieved. "With high income, questions beyond the reach of economics obtrude. These require consideration of how much beauty should be sacrificed for increased output. Or how many civilised values in order that goods be more effectively sold ... Or how extensively should education be accommodated to the needs of production as opposed to the needs of enlightenment? Or how much [work] discipline should be enforced on men to ensure greater output? Or how completely should the individual subordinate his personality to the organisation which was created to supply his wants?" - Galbraith, J.K., The New Industrial State, Houghton Mifflin, 1968, p. 413.

59. Curle, A., op. cit. (ref. 23), p. 17.

60. Robinson, R., op. cit. (ref. 7), p. 7.

61. Hirschman writes: "There once was a flourishing literature on the institutional and cultural obstacles to development. As evidence accumulated that what is an obstacle in one country is often a stimulus to development in another, writing on this theme has ... gone into eclipse." - Hirschman, A.O., op. cit. (ref. 9), p. xviii.

62. See, for example, Schultz, T.W., Investment in Human Capital in Poor Countries, in Zuk, P.D., Foreign Trade and Human Capital, Southern Methodist University Press, Dallas, 1962, pp. 7-14; and McGuire, J.W., Knowledge: The Basic Business Commodity, in Carroll, S.J., Pain, F.T. and Miner, J.B. (eds), The Management Process: Cases and Readings, Collier-Macmillan, London, 1973, pp. 119-121.

63. In some countries education created new hierarchies, institutions and snobbisms. President Nyerere warned: "... the educational system of Tanzania must emphasise cooperative endeavour, not individual advancement ... in particular our education must counteract the temptation to intellectual arrogance; for this leads to the well-educated despising those whose abilities are non-academic or who have no special abilities ..." - Nyerere, J.K., Education for Self-Reliance, Government Printer, Dar es Salaam, 1967, p. 7.

In others it increased urban unemployment and social tensions.

64. Galbraith, J.K., A Positive Approach to Foreign Aid, Foreign Affairs, Vol. 39, No. 3, April 1961, p. 444.

65. Government of Pakistan, Pakistan: Five-Year Plan, Planning Commission, Karachi, 1957, p. 309.

66. Almond, G.A. and Coleman, J.S. (eds), The Politics of Developing Areas, Princeton University Press, Princeton, 1960.

67. See, for example, Nellis, op. cit. (ref. 48); Davidson, op. cit. (ref. 3); of several African countries which started independence with multi-party systems only a handful (Gambia, Senegal and Botswana, etc) still retain them. The majority have become one-party governments or military dictatorships.

68. West Africa Magazine, One Step to One Party in Sierra Leone, West Africa, 5 June 1978, pp. 1062-3.

68. Kaldor, N., in an address to a conference at Cambridge in 1965, quoted in Robinson, R., op. cit. (ref. 7), p. 11.

CHAPTER 2

MODELS AND STRATEGIES FOR DEVELOPMENT

> "The defining features of this class of theory is that development is progressive, that it is good (although sometimes painful), and that it is normal if not inevitable. By these tokens successful cases do not require explanation ..., and the 'pathology' of non-development needs only to be diagnosed to be cured."
>
> - S. Wallman, Perceptions of Development, Cambridge University Press, 1977, p. 6,

> "The early excitement over the [development] problem and the great doctrinal debates over alternative solutions or strategies have considerably abated; and both work on the problem and thought about it have become more subdued, diffident, lacklustre, yet also more steady ... one of the advantages of writing at this comparatively late stage of the development effort is the ability to look back and learn from past mistakes, of which there have been many. Nevertheless, there are pitfalls here also ... it is easy to learn the wrong lessons from history. In the case of development, wrongheaded learning of this sort is already in evidence."
>
> - A.O. Hirschman, Preface to the Rothko Chapel Colloquium: Toward a New Strategy for Development, Pergamon Press, New York, 1979, pp. xvi-xvii.

2.1. Introduction

The identification of the attributes of development led to the formulation of theoretical models to aid policy-making. Each model selects a number of goals towards which development effort should be directed, and includes outlines of key strategies, resources and the environmental conditions. Earlier approaches focused on economic growth and assumed world-wide applicability (these are termed 'conventional' or 'traditional' models in this thesis). The appreciation of the importance of socio-cultural and political dynamics aroused further discussion and refinement of the paradigms. Greater attention came to be paid to the needs of the most underprivileged in developing societies (the 'growth with equity models'), and social scientists became sceptical

about the efficacy of a 'blueprint' for development.

2.2. The Conventional Models

The earlier models were based on the paths taken by the developed countries: they considered development to be an attempt to expand the productive capacity of the economy, thereby creating additional distributable income. This would involve, or result in, some of the basic features of industrial societies. Thus development was a possible and desirable once-and-for-all exercise: it becomes spontaneous after a certain stage when the necessary conditions are met, or missing ingredients introduced[1].

2.2.1. Capital Formation versus Consumption

Some models of development simplified the economy into one producing two types of goods: 'capital goods' and 'consumer goods'[2], both of which compete for scarce resources. Using the Keynesian concept of income-generation of capital, it was considered advisable that resources be allocated to investment in order to increase productive capacity and, after a time lag (when the multiplier and accelerator had operated), generate additional income. A corresponding approach (using the Harrod-Domar model)[3] outlined the output-generation of income. Thus, capital accumulation, through savings or foreign aid and investment, assumed prime importance. National economic planning involving the calculation of the capital/output ratio for the economy and its sectors was considered essential. According to Lewis

> "... the central problem in the theory of economic development is to understand the process by which a community which was previously saving and investing 4 or 5 per cent of its national income or less, converts itself into an economy where voluntary saving is running at 12 to 15 per cent of national income or more."[4]

Critics pointed out at the time, as well as later, that there was no guarantee that capital would be put to productive use[5], that savings

in developing areas could easily be underestimated[6], that the capital/output ratio assumed past relationships which might not always apply and that it was possible for increases in output to result from measures not related to capital, such as stricter control, administrative reform, better management or changes in public attitudes. The neglect by this approach of the importance of factors such as education, health, social security and technical progress has drawn the greatest criticism.

> "There is considerable empirical evidence that a large number of countries have experienced economic growth much faster than would be expected on the basis of a constant capital/output ratio and the annual rate of capital formation .... The principal shortcoming of the model for purposes of economic development analysis is that it assumes as constant one of the structural characteristics, technical knowledge, which economic development, almost by definition, considers variable. It is not very productive to assume 'other things equal' when the principal question revolves around the explanation of why and how 'other things' change."[7]

The distinction of 'capital' from 'consumption' goods has become less clear: investment in projects that raise the quality of life of the populace is considered as necessary as that in those that are directly productive (see 1.4.2. and 1.4.7.).

2.2.2. Exploiting Unemployed Resources

Developing countries were said to be characterised by a surplus of labour in the subsistence sector. A model of development devised by Lewis (1953)[8] was based on the movement of labour from subsistence agriculture and over-manned occupations to the capitalist sector; the basic assumption being that wages in the capitalist sector (a little above average earnings in subsistence sector) would remain constant until all the surplus labour had been attracted to it.

The arguments against this model were that surplus labour could not be removed from the land without reducing agricultural output[9], that the unemployment and underemployment observed in subsistence agriculture existed at certain times of the year only[10], and that the model took

other important factors for granted: finance (especially foreign exchange), skilled manpower and physical infrastructure.

In practice, development seldom followed the course laid down by Lewis: wages rose without significant drops in levels of subsistence employment, and increases in industrial output were possible without considerable increases in employment in the capitalist sector. The dual society became the characteristic feature of several developing countries. (See 1.3.2)

2.3. Strategies

After adopting a model for development each country needs to determine ways (strategies) and means (resources) of achieving the objectives. There were several feasible paths[11] right from the early days: writers who agreed on models of development did not necessarily agree on strategy.

2.3.1. Balanced or Unbalanced Growth

One of the leading controversies in development studies was about the size of the effort to be mounted. Rosenstein-Rodan (1943)[12] advocated a 'big-push' on several fronts at once, based on central government planning and economic decision-making. The simultaneously developed industries would benefit from one another, make more efficient use of existing and newly-created infrastructure and generate rapid increases in income, and hence, effective demand. The feasibility of such an approach was questioned. As Singer (1964) wrote:

> "... the resources required for balanced growth are of such an order of magnitude that a country disposing of such resources would in fact not be underdeveloped."[13]

The other school of thought suggested that developing countries should pursue 'unbalanced' growth. Hirschman (1958)[14] advised the establishment of projects with strong 'complementary effects': those

that would, in turn, promote the creation of the greatest number of allied ventures. Thus, attention should be paid to the sequence of projects.

Ideas on the subject soon became pragmatic; the choice was to be determined by the availability of resources, and the situation. According to Schiavo-Campo and Singer (1968):

> "It would indeed be as silly to spread all resources around an economy as a matter of systematic policy as it would be to concentrate everything, also as a matter of principle on one specific sector. Still there is a difference between a balanced growth approach and an unbalanced growth approach ... To be sure, it is a difference of degree and not of kind. A concrete approach is strongly influenced by the surrounding environment, certainly more so than by economic development ideology."[15]

2.3.2. Technology

The type of technology to be adopted by developing countries has also generated much argument. Some writers advised against the temptation to use labour-intensive methods of production, utilising the cheap, abundant unskilled labour in these areas: they advocated rational choice based on efficiency and economy. The precedent had been set in Europe: Gerschenkron (1965)[16] found that, during the industrial revolution, the more backward European countries always adopted bigger and more sophisticated projects. Therefore, suggested Kaldor (1965):

> "If you want to achieve the quickest rate of economic growth which means maximising output per head of population you should invest scarce capital in advanced techniques, not waste it on inefficient ones .... There is no question from every point of view of the superiority of the latest and more capitalistic techniques."[17]

Galenson and Leibenstein (1955) also suggested the use of capital-intensive techniques since they had the highest 'reinvestment quotient' or maximised worker productivity minus worker consumption[18].

As capital-intensive projects led to unemployment, few centres of prosperity-generating problems of rapid urbanisation and inefficient

production, a new approach was proposed: 'intermediate' or 'appropriate' technology, which, at the same time as being efficient and competitive, also permitted reasonable levels of employment, lower capital investment and disaggregated units of production[19].

2.4. 'Growth with Equity' Models

Traditional models of development did not pay adequate attention to people, and in particular, the least privileged people. A report by the Dag Hammarskjöld Foundation (1975)[20] advocated 'another development', essentially a more equitable distribution of the results of economic growth; and of social and political power.

New models of development have emerged which 1) see the development process as self-sustaining and continuous rather than a once-and-for-all phenomenon, 2) concentrate on the satisfaction of the most essential needs of the poor, 3) harness the social and cultural institutions of the people, and 4) consider the need for environmental harmony. The rationale is a 'trickle-up' effect, development concentrated on the poorest in the society initially, and benefiting the most wealthy eventually. (As opposed to the 'trickle-down' rationale of conventional paradigms. See also 1.3.2.)

2.4.1. Basic Needs

The present emphasis on the importance of meeting the most essential requirements of the poor is based as much on moral and humanitarian as on economic and political grounds. It is an investment in human resources development to raise productivity and increase income, albeit in the long run. Streeten (1974) suggests that these basic needs are:

> "... more and better food, safe water at hand, security of livelihood, health, sanitation, education, decent shelter, adequate transport. In addition there are nonmaterial needs like self-confidence, self-reliance, dignity, capacity to make one's own decisions, to

> participate in the decisions that affect one's life and work, and to develop fully one's talents ..."[21]

Thus, development should be a direct attack on poverty. Internally, capital should be switched from large-scale projects to this area. The main attributes of the 'basic needs' or 'growth with equity' approach to development are as follows.

2.4.2. Methods of Production

There should be an equitable distribution of productive assets, such as land[22]. Technical information and services should be provided for small producers[23]. For farmers, efficient methods, new seeds, fertilizer and irrigation could be introduced. In the case of self-employed tradesmen and manufacturers, equipment, credits and industrial estates could be provided. A system of feeder roads should connect the rural areas with major regional and marketing centres.

Development should be diffuse and rural-based with each area having easy access to reasonable health care and secondary education. Emphasis should be on regional self-help and self-reliance: a community spirit could be engendered, and off-season labour might be used for building development works[24]. In all fields, efforts should be made to choose an appropriate technology.

2.4.3. Implementation

This approach to development can only take place within a framework of government planning and control. Some writers take for granted the willingness of governments and the socio-political system to implement it but others point out that such a programme would inevitably be accompanied by slow growth of national income, and lead to social tension, unrest and political instability. A strong and committed government is, therefore, called for[25].

It was likely also, for owners of capital to be opposed to

redistribution of land, or to programmes which threaten their share of the market[26]: it would take a strong government, again, to effect these measures.

2.4.4. Resources

According to exponents of this programme, experience has shown that the basic needs of the people could be met by relatively low financial outlays[27]. Though this approach to development would be slower than industrialisation and look less glamorous, it held a greater promise of success. The programme should be financed by domestic savings, increased foreign aid and a rearrangement of international trade practices[28].

2.5. Revolutionary Models

Marxist writers[29] stress the importance of classes in society. They reject traditional models of development as resulting in further inequality, nor do the 'growth with equity' models go far enough for them; moreover, their implementation would be thwarted by the actions of the elite and capital owners. Furthermore, unless the class structure is radically altered, any change in the international economic order would benefit only the rich in the poor countries[30].

The only answer lay in social revolution , the masses overthrowing the government and taking power themselves.

Rural, labour-intensive methods of production would, according to this school of thought, freeze the poor in the subservient role of producers of primary commodities. Rather, development should be based on the latest technology and the most dynamic industry.

2.6. Conclusion

Not only has there never been a single package of universally-

applicable measures to promote development, although some models and strategies have been popular with governments and international aid organisations[31], but the dominant ideas on the topic have changed over the years, as practical experience has exposed the drawbacks in various approaches. Social scientists, administrators and politicians have become convinced that there is no easy short-cut to development, that the solution of some problem(s) leads to others, which interact with the other issues and diminish the effect of attempts to ameliorate them, and that development probably becomes more difficult the further a country progresses: issues that were ignored, postponed or unknown, become critical and attract attention and resources.

Although a panacea for development is yet to be formulated, if that is at all possible, experience has increased the understanding of the process, which may be summarised thus[32]:

(a) development is essentially about people viewing life in its totality and participating in decisions that affect them; it is a process of social change in the widest possible sense;

(b) development is not an imitative exercise, borrowing and delivering a ready-made package, but rather an endogenous process which each country needs to put into practice in keeping with its own values, political systems and resource endowment; and

(c) the world's resource potential and technological capacities are sufficient to meet the reasonable known needs of people everywhere if properly mobilised, and if appropriate global systems are created to supplement and reinforce national efforts towards self-reliant development.

The understanding of development has led to the obsolescence and, in the main, discarding of certain ideas[33]. The definition of development has become broader, and models and strategies have tended to be more egalitarian and oriented towards the quality of life. Streeten (1979)

predicts that the main issues will soon change:

> "... looking back only a few years, or even months, one is astonished at the problems that vexed the profession and by the absence of the discussion of problems that vex us today. With the wisdom of hindsight it is now clear that the really important issues lay elsewhere ... Very few indeed would have predicted in 1950 that the preoccupations of the mid-Seventies would be transnational companies, 'stagflation', protection of the environment, energy shortages, and the intractable nature of the development process. One safe prediction is that few, if any, of the problems that concern us now will stand high on the agenda in the year 2000."[34]

2.7. Notes and References

1. Even in the early days there was no universal agreement on the missing ingredients. Rostow stressed capital whereas Schumpeter referred to entrepreneurship and innovation: both were criticised by others.

2. See, for example, Lipsey, R.G., Introduction to Positive Economics, Weidenfeld and Nicholson, 1966, Chapter 56.

   By the same token, the populace was divided into 'producers' and 'consumers': the latter were less likely to save than the former. Some writers advised the utilisation of strategies which would increase the proportion of wealth held by the former (see reference 18).

3. This model was not formulated for developing economies but came to be widely applied to them. It states that the rate of growth of output is equal to the capital/output ratio divided by the ratio of savings to income.

4. Lewis, Sir W.A., Economic Development with Limited Supplies of Labour, Manchester School, May 1954: reprinted in Agarwala, A.N. and Singh, S.P. (eds), Economics of Underdevelopment, Galaxy Books, 1963.

5. See, for example, Baran, P., On the Political Economy of Backwardness, Manchester School of Economic and Social Studies 20, January 1952, pp. 66-84.

6. Such as savings in gold or other symbols, and improvements to fixed assets by own-account or community works such as dams and drains.

7. Schiavo-Campo, S. and Singer, H.W., Perspectives of Economic Development, Houghton Mifflin, Boston, 1968, p. 58.

8. Lewis, Sir W.A., Industrialisation and the Gold Coast, Government Printer, Accra, 1953.

9. See Schultz, T.W., Role of Government in Promoting Economic Growth, in White, L.D. (ed), The State of the Social Sciences, Chicago University Press, 1956.

10. As found by Jorgensen in South-Eastern Europe, China, Egypt and South-East Asia. See Jorgensen, D., Testing Alternative Theories of the Development of a Dual Economy, in Adelman, I. and Thorbecke, E. (eds), The Theory and Design of Economic Development, John Hopkins, 1967.

11. Despite the popular view of the period that development was unilineal (Rostow).

12. Rosenstein-Rodan, P., Problems of Industrialisation of Eastern and South-EAstern Europe, Economist Journal, June 1943, reprinted in Agarwala, A.N. and Singh, S.P. (eds), Economies of Underdevelopment, Galaxy Books, 1963; and Rosenstein-Rodan, P., Notes on the Theory of the Big Push, in Ellis, H.S. and Wallich, H.C. (eds), Economic Development for Latin America, St. Martin's Press, 1961.

13. Singer, H.W., International Development: Growth and Change, McGraw Hill, 1964, p. 46.

14. Hirschman, A.O., Strategy of Economic Development, Yale University Press, 1958.

15. Schiavo-Campo, S. and Singer, H.W., op. cit. (ref. 7), p. 52.

16. Gerschenkron, A., Economic Backwardness in Historical Perspective, Praeger, 1965.

17. Kaldor, N., in Robinson, R. (ed), Industrialisation in Developing Countries, Cambridge University Press, 1965, p. 29.

18. Galenson, W. and Leibenstein, H., Investment Criteria, Productivity and Economic Development, Quarterly Journal of Economics, Vol. 69, No. 3., 1955, pp. 343-71.

19. Schumacher believes that present-day economics does not help the poor: "Invariably, it proves that such policies are viable as have in fact the result of making those already rich and powerful richer and more powerful. It proves that industrial development only pays if it is as near as possible to the capital ... or another very large town and not in the rural areas. It proves that large projects are invariably more economic than small ones, and it proves that capital-intensive projects are invariably to be preferred as against labour-intensive ones." - Schumacher, E.F., Small is Beautiful, Abacus, 1973, p. 61.

    Schumacher and others making similar observations advocated one new approach to development emphasising the importance of people.

20. Dag Hammarskjöld Foundation, What Now? Another Development, Uppsala, 1975.

21. Streeten, P., Development Ideas in Historical Perspective, in Toward a New Strategy for Development, A Rothko Chapel Colloquium, Pergamon Press, 1979, p. 48.

22. Adelman and Morris evaluated various methods of ensuring an equitable distribution of the results of development. See Adelman, I. and Morris, C.T., Economic Growth and Social Equity in Developing Countries, Stanford University Press, Stanford, 1973.

23. The bulwarks of this method of development are agriculture, light industry processing agricultural goods or producing light consumer goods based on local raw materials, retailers, other small businesses and tradesmen (carpenters, masons, etc.).

    See, for example, Chenery, H. et al., Redistribution with Growth, Oxford University Press, 1974; and Employment, Growth and Basic Needs: A One World Problem, International Labour Office (ILO), Geneva, 1976.

24. Weaver, J.H. et al., Seven Proposed Marriages for Growth and Equity: Analyses of Models and Critiques, Development Forum, September 1978, pp. 8-9.

    This article discussed seven 'growth with equity' models.

25. Ibid. The ILO recommends a basic needs approach of development to its poor member-countries.

26. In Chile, the attempt by Allende's government to redistribute productive resources was opposed by owners of capital who strangulated the economy and precipitated the government's collapse.

27. For example, Sri Lanka achieved many of the basic goals with about $14-15 per capita per annum. Thus to attend to the basic needs of the poorest one billion peoples would call for a total amount of $14-15 billion, which a World Bank Study by ul Haq, Grant, Streeten and Burki considered 'relatively small'.

    Weaver, J.H. et al., op. cit. (ref. 24(, p. 8.

28. This programme will not be attractive to both internal and external private capital, and should be financed by central government and official foreign aid agencies. Views on foreign aid amongst writers on 'growth with equity' range from appeals to the good nature of developed countries, to the suggestion of a form of 'international taxation' (ul Haq in ibid.).

29. Ibid., See also, Baran, P., op. cit. (ref. 5), and Dobb, M., Political Economy and Capitalism, International Publishers, New York, 1945.

    See also Seers, D. (1979) for a summary of Marxist approaches to development. - Seers warns against classifying authors, and indeed governments, in terms of ideological groupings since stances change, not only from time to time, but depending on the situation, and the point at issue. - Seers, D., The Congruence of Marxism and Other Neoclassical Doctrines, in Toward a New Strategy for Development, op. cit. (ref. 21), pp. 1-17. (In this paper, Seers summarises Marxist approaches to development.) To illustrate this point, Warren, who could normally be classified as a Marxist writer, rejects the liberal-populist outlook to development which embodies: "... an excessive and impractical emphasis on equal income distribution, the retardation of economic growth for employment reasons and counter-productive proposals for debt cancellation or default." - Warren, B., The Postwar Economic Experience of the Third World, in Toward a New Strategy for Development, op. cit. (ref. 21), p. 168.

30. This point was made most forcefully by Frank (1967) and other proponents of the 'dependency' theory. See Frank, A.G., Capitalism and Underdevelopment in Latin America, Monthly Review Press, 1967.

31. For example, development effort in the 1950's and 1960's was dominated by Rostow's approach which formed the basis of the report of the Pearson Commission*; the Economic Commission for Latin America advocated import-substitution and de-linking strategies (Prebisch and Frank)**; and the 'basic needs' approach is favoured by the World Bank and the ILO and other agencies (Dag Hammarskjöld Foundation and internal working papers)+.

    This sometimes gives the illusion that a single paradigm of economic development exists (in each period).

    * Commission on International Development (Pearson Commission), Praeger, New York, 1969.

    ** See, for example, Cardoso, F.H., The Originality of the Copy: ECLA and the Idea of Development, in Toward a New Strategy for Development, op. cit. (ref. 21), pp. 53-72.

    + See, for example, WEaver, J.H. et al., op. cit. (ref. 24).

32. The following are based on issues raised in: Wignaraja, P., A Creative Conflict, Development Forum, Vol. VII, No. 5, June-July 1979.

Schumacher advises that development: "... can succeed only if it is carried forward as a broad, popular 'movement of reconstruction' with primary emphasis on the full utilisation of the drive, enthusiasm, intelligence and labour power of everyone. Success cannot be obtained by some form of magic produced by scientists, technicians or economic planners. It can only come through a process of growth involving education, organisation and discipline of the whole population. Anything less than this must end in failure." - Schumacher, E.F., op. cit. (ref. 19), p. 171.

33. See Streeten, P., op. cit. (ref. 21), pp. 46-48 for a summary of discarded ideas. This does not mean that a common theory of development has evolved. For example, the proponents of conventional models continue to argue that history makes it plain that the source of dynamism and of hope for higher standards of living for the poor is urbanisation and industrialisation, and that only through coercion can one keep people in rural areas. They assert that their approach is working, but is being judged too soon: they cite Brazil, which doubled its GNP between 1968 and 1974 as an example, although real wages did not rise, and actually fell in certain periods of the 'miracle'. The only answer to development, to them, lies in: "... more rapid growth of the GNP, more use of multinational corporations and agribusiness, more reliance on export promotion, and ... the necessity of 'getting prices right' ie slowing the growth of wages, raising the cost of capital, allowing foreign exchange rates to be market-determined, and increasing prices paid to farmers." - Weaver et al., op. cit. (ref. 24), p. 9.

34. Streeten, P., op. cit. (ref. 21), pp. 36-37.

PART TWO

CONSTRUCTION AND DEVELOPMENT

CHAPTER 3

CONSTRUCTION IN DEVELOPMENT

"The changes in economic conditions in recent years in many European countries has demonstrated the sensitivity of construction to economic fluctuations and the sector's heavy influence on general economic stability ... Economic growth and social equality presuppose more construction and more construction contributes to growth."
-Economic Commission for Europe. Long-term Prospects and Policies in the Construction Sector, United Nations, New York, 1976, pp. 1-2.

"... some of the problems with which the building industry in Africa is faced are of a similar nature to those encountered in more industrialised countries. Discontinuous programmes, frequent stoppages of work, conflicts arising from the interpretation of inadequate or incomplete specifications and drawings, delays in the settlement of accounts or in the refund of guarantee funds, etc ..."
-Economic Commission for Africa, Housing in Africa, United Nations, New York, 1965, p. 99.

3.1. Introduction: The Construction Industry

The construction industry is responsible for the planning, design, construction, maintenance and eventual demolition of the buildings and works which enable economic and social activities to be performed. It is, essentially, a service industry, obtaining its inputs from various sectors of the economy, with which it is interrelated and interlinked in a complex manner.

Since development, by whatever definition, implies or results in, an increase in socio-economic activities, the construction industry has an important role to play in the process. Moreover, the success of the development effort will, sooner or later, mean an increase in disposable incomes, which will generate demand for additional construction activity. Thus there is a cyclic relationship between construction activity and development.

To understand this relationship it is important to consider first

the products that the construction industry creates.

3.2. The Products

It is difficult to delineate the multiplicity of goods that construction activity results in, and it is even more problematic to attempt to categorise them. For the purpose of obtaining a basis for discussion, however, it is necessary to adopt some sort of classification. Thus the products of the construction industry may be referred to as being either 'capital' or 'social' goods. This type of categorisation is adopted for its simplicity, and also because it will be useful at a later stage (see 3.3).

3.2.1. Capital Goods

By 'capital' construction goods are meant the items that are used as 'inputs' to create other products or services. Examples of these are factories, sheds, warehouses, hotels, offices and shops. The increase in demand for such items is directly proportional to the additional demand for the goods and services they are used to produce.

In this same category belongs infrastructural works such as roads, bridges, railways, ports, and telecommunications installations, which are required for distributing goods and services. These usually serve more than one establishment or district, and are invariably financed by government.

3.2.2. Social Goods

Social items of construction are those that are enjoyed as ends in themselves, such as houses, churches, parks, social centres and monuments.

The arbitrariness of the categorisation is shown by the fact that these may also be considered as enhancing the non-material aspects of the people's lives, and hence as productive (see 1.3.2; 6.2.2.1).

There is even greater difficulty with 'social' items of construction such as schools and hospitals which, even more clearly, 'produce' a better quality of population[1].

With the exception of the demand for housing, some of which is from private clients, the demand for social items of construction is government (such as hospitals) or society (such as churches) inspired.

3.3. The Process and Its Implications

Construction activity involves the translation of the needs of a client into a building or works to:

(a) support the performance of known activities;

(b) accord with certain minimum prescribed standards; and

(c) blend with its environment.

The total demand put to the construction industry is a profile of various types of work for various clients in certain places. The profile is determined, in turn, by the model and strategy of development adopted by the country.

A conventional approach (see 2.2) would call for more construction items of the 'capital goods' category, and the 'growth with equity' approach (see 2.4.) will entail a predominance of 'social' construction. Furthermore, a 'balanced' strategy would require a comparatively greater volume of construction than an 'unbalanced' strategy (see 2.3.1).

On the other hand, items of construction have a long period of gestation, and being built of durable materials, have a long life. Thus, they determine the course of future development to some extent: factories cannot be converted to hospitals except at some cost, and a road supports the establishment of settlements and new socio-economic activities which then feature in future policies.

Construction goods are, therefore, not only created in response to the needs of a society, but also shape the nature of the society's

future. In any country, buildings and works reflect not only development strategy, especially those initiated by government, but also tastes and preferences (aesthetics, shown in materials), incomes (which determine quality and durability as well as quantity), the climate (choice of materials), technology (type, size and sophistication), culture (shapes and sizes) and history. Turin (1978) believes that construction products:

> "... are the most visible (because physical) and amongst the most permanent (because of the technology we use) manifestations of society: of its conflicts, its failures and its successes. In fact ... [they] are so deeply embedded in the society which produces them that it becomes idle to speculate whether they are a cause (or tool) or an effect (or consequences) of development."[2]

3.4. History

Construction projects have been planned and executed since antiquity in all parts of the world, using resources and adopting layouts and designs in keeping with the people's culture, their material circumstances and their technical knowledge at the time[3]. As needs changed the demand put to the construction industry became different, and it was required to adapt in several senses.

In the developed countries change was gradual and the industry was able to grow with the economy in size, in sophistication and in organisational form. Its experience was progressively enhanced as it attended to, and overcame the challenges posed by industrialisation and economic expansion.

The case of the developing countries was quite different. Here the colonial period (see 1.4.4) saw the introduction of materials and techniques that were in use in the metropolitan countries, and a 'dualism' emerged as 'modern' construction existed with, and gradually eclipsed, the indigenous 'traditional' sector. In this sense the development of the construction industry was not unlike that of the economy generally (see 1.3.2 and 2.2.2) but with independence another

facet of the issue emerged.

Political independence was achieved on a wave of support generated through promises of better conditions by the leaders[4]. The crisis of expectations and the genuine desires on the part of the leaders to achieve rapid, tangible progress led to the initiation of projects of both a capital and social nature, but mostly of the former, on a large scale. The local industry was confronted with a volume of demand with which it could not cope. Moreover, resources - materials, equipment and skilled personnel - were mostly imported; this soon led to balance of payments problems, which necessitated reductions in programmes.

Thus, it is true to say that the failure of several developing countries to make any headway despite elaborate economic planning and determined effort is due, in part, to their inadequate construction capacity. A few examples in Africa may be cited. In Nigeria (1962-66):

> "During the first two years of the plan period ... few of the new major projects were ready for execution. Work had not been completed on such matters as site surveys, materials required, estimates of costs, and engineering and architectural designs."[5]

Appraisals of plan implementation in Ghana (1965)[6] and Tanzania (1967)[7] note similar divergences between planned activity and accomplishments.

3.5. The Construction Industry in Development

Several development theorists assumed that industrial growth would ensure, or result in, the development of construction[8]. Others, however, have pointed out the important role that construction can play in development. Dalton (1974)[9] noted that a building industry engaged on public works was one of the leading sectors of Russia's development effort in the early 18th Century, and Flores (1971)[10] observed that Mexico created a construction industry which, by building irrigation dams and roads since 1925, has supported agricultural and industrial expansion. This showed that:

> "The construction of irrigation works and highways is a strategic measure that induces the establishment of a multitude of new productive activities. Hirschman would say that the sequence: irrigation-highways has numerous backward linkage effects and forward linkage effects."[11]

Writers advocating the 'growth with equity' approach emphasise the advantages of self-help and rural development projects using off-season labour or utilising the enthusiasm and community spirit of the rural folk[12].

Even if construction is not considered a vanguard of the development process, some writers advise that its growth is indispensable. Lewis (1955) observed that:

> "More than half of capital formation consists of work in building and construction. Hence the expansion of capital is a function of the rate at which the building and construction industry can be expanded .... Hence the question of how rapidly capital formation can be accelerated resolves itself first into the question of how rapidly the building industry can be expanded."[13]

A similar call was made by Turin (1973), who warned that:

> "... construction can grow faster than GDP, and probably it should ... if it fails to do so construction capacity may become a serious constraint to a sustained capital investment programme ...."[14]

As can be seen from the above discussion, the admonitions on what should be done about the construction industry depended upon the writer's perception of the development process (see 1.3.6). If it meant economic growth then the industry should be enabled to sustain planned levels of capital investment. On the other hand, a 'basic needs' approach called for rural-based, labour-intensive social projects.

Later, like the studies of development (see 1.3 and 2.4), the very nature of the 'expansion' of the construction industry came to be examined. Schumacher (1973)[15] and others warned of the balance of payments problems that would be generated by a construction programme creating additional wages without corresponding increases in local production of wages goods. Drewer (1975)[16] referred to the inflationary nature of the same phenomenon.

In the late 1960's and the 1970's it was considered necessary that construction should be planned for. It was pointed out that countries which had neglected their construction industries in the early stages of their development had made a mistake:

> "In a developing country's early industrialisation strategy, adequate emphasis should be given to the manufacturing of construction plant, equipment and tools and engineering equipment for the civil engineering industries. Sri Lanka's failure in this regard (partly on account of her earlier emphasis on consumer goods manufacturing) is a lesson for other developing countries."[17]

A new group of writers from several disciplines emerged, whose major concern was how the construction industries of developing countries could be improved (see Chapter 5).

3.6. Features of the Construction Industry

A deeper understanding of the nature of the construction industry is essential if policies formulated for it are to have the desired effect. It is instructive, therefore, to consider briefly some of the features of the industry.

3.6.1. Size

In every country, the construction industry plays a major role in the economy, contributing a significant proportion of annual national product, employing a sizeable portion of the working population, responsible for about half of capital formation, and relating to other economic activities in a complex manner[18]. Thus construction is both a determinant of, and a determinate for, economic development. (See 5.4.1 and 5.4.3.1 for data on the role of construction in the economy.) The industry obtains its vital resources (materials, manpower, plant and equipment, and finance) from several sectors of the economy, and it is affected, favourably or adversely, by a wide range of measures (such as restriction of credits (see 3.6.2), taxation, import controls,

education policy and support of research).

3.6.2. Cost, Finance and Government's Role

The products of the construction industry are very expensive. Thus they are purchased from accumulated savings, This has several implications. Firstly, excessive demand for construction, creating additional wage income might be inflationary[19]; secondly, government's fiscal policies have a considerable effect on the flow of funds to private purchasers, and hence effective private demand for construction[20]; and thirdly, government is the most important client of the industry: for certain sectors, for example civil engineering construction, it is a virtual monopsonist. (See 3.2.1.-2) Thus all governments find themselves relating directly to the construction industry as clients, and indirectly as makers of policies which affect its operations.

> "... due to its investment character, construction may serve as an effective means of regulating/stimulating economic development. The considerable share of governmentally financed and subsidised investments ... enables governments to control the building market to rather a great extent and to intervene in the shaping of conditions .... Beside this type of direct intervention, governments may influence the demand for construction also through tax and credit policy, price control, etc."[21]

At the micro-level, the high cost of construction means that each project is a high proportion of the contractor's work load per annum. Risks involved in construction are high, and the industry has a high rate of company mortality[22]. It also means that clients take care to safeguard their investment or minimise their costs. (See 3.6.4).

In the wide socio-economic context, the implication is that construction projects compete with other more obviously productive sectors of the economy for vital financial resources, and in the developing countries, foreign exchange. Finally, the large share of public demand offers governments the opportunity to promote the development of appropriate materials, technologies and practices. The

role of governments goes beyond their acting as clients to their direct (building regulations, codes, etc) and indirect (taxation, wage policy, etc) control of aspects of construction.

With governments, whether knowingly or unknowingly, and whether deliberately or otherwise, playing such a dominant role in construction, and in view of the important part the industry plays in development, most writers urge governments of the developing countries to take complete and effective control of it. (See Chapter 5).

3.6.3. Time Lags

Construction projects last very long, and call for different mixes of vital resources at various stages. For the industry, it is difficult to time measures aimed at resolving specific issues to have the desired impact at the required moment.

> "... the production cycles to which the industry operates are among the longest in the economy, and ... consequently the outcome of a policy decision ... for construction can be delayed to such a point that it occurs when general economic conditions have altered and government policies have changed."[23]

Furthermore, the same measure(s) might have different effects on parts of the industry at the same time. Thus formulating policies for the construction industry is a formidable task demanding foresight, expertise and a sense of balance, especially as experience in several countries has shown that the industry takes a long time to recover from adverse conditions such as a major depression[24].

3.6.4. Response to Demand

Unlike several sectors of the economy, the construction industry, in the main, cannot stock its products: it produces in response to demand, this being made up of a building or works for a particular client at a predetermined cost, within a specified time, and according

to documented instructions. (See 3.3)

For the industry, this factor, combined with the time it takes to develop some of its resources, explains why major swings in demand can have a harmful effect. For individual firms, the entrepreneurial freedom of the proprietors are limited; the contractor finds many of the aspects of his operations beyond his control: the materials and, to some extent, techniques to be used are specified, and some subcontractors and suppliers nominated[25].

3.6.5. Location

Construction products are, generally, fixed to the ground where they are produced. Thus the geographical dimension enters the demand portfolio: not only do projects differ in type, calling for varying combinations of resources, and not only is total demand variable over time, but also the demand varies from region to region, and even from one district to another at any time.

This feature has some implication for the strategy of development a country adopts: 'balanced' growth calls for a mobile, nationwide industry, whereas an 'unbalanced' approach does not. Thus the type of construction industry a nation has or can muster, determines, to some extent, the appropriate or possible strategy of development. (See also 3.3)

The fragmentary nature of demand for construction has engendered a corresponding structure of firms, and practices: in most countries there is a myriad of small, often transient firms, with flexible employment policies, little investment in capital, little industrialisation and, usually, a careful delineation of reasonable numbers of projects or geographical limits. There is,

> "... something of a vicious circle in that the instability and fragmentation of demand tend to promote an industrial structure which is in turn geared to a small-scale unstable demand ..."[26]

3.6.6. Organisation

A construction project draws together persons with a variety of skills. Generally, the larger or more sophisticated the project, the greater the number of different types of skills. The roles of the personnel differ from project to project as well as from one stage of a particular project to another.

Turin[27] classified the changing roles of the participants under four main groups: Traditional, Component Approach, Speculative Building and Package Deal. But Higgin and Jessop (1975) wrote:

> "... we are not attempting to set up a comprehensive typology to embrace all the types of patterns that exist ... the field is too complex."[28]

They portrayed an industry composed of an interplay of several functional organisations participating in the process at various stages, in different ways, for varying periods of time, to achieve specific subobjectives at various points in time. The subtasks are inter-dependent, flow into one another, and are performed in an atmosphere of uncertainty, in a rapidly changing overall environment.

Unfortunately, the industry, in most countries, is characterised by a rigid set of duties, relationships and authorities which impede cooperation amongst the participants and the appropriate harnessing of their skills. The Tavistock Institute (1966) wrote of the British construction industry:

> "The experience of the team has been of an industry in which misunderstandings, delays, stoppages and abortive work result from failures in communications and the team's impressions were of confusion, error and ... conflict."[29]

Thus, contractual procedures and the definition of roles have implications for the efficiency of the industry, a factor of special significance to the developing countries who still use the practices and codes adopted from the former metropolitan states. (See 3.4)

3.6.7. Technology

There is a wide range of technologies employed in the construction industry of each country. In the advanced countries the latest techniques have not replaced, but have been added to, the old. Sills and Vegoda (1973) asserted that:

> "One striking feature of conducting a study in the building industry [of the United Kingdom] is the frequency with which different techniques or practices are traced back to the Ark ..."[30]

Thus, in each country, the industry utilises a continuum of techniques and materials ranging from the simple, traditional or ancient at one end, to the most highly sophisticated or industrialised.

This is particularly important in the developing countries which need a wide range of programmes to initiate and sustain their development, entailing a wide spread of work types in a considerably short time. To achieve this, they have at their disposal a variety of materials and techniques including those recently developed in the more advanced countries[31]. Thus, depending on the policy of the government, materials and equipment may be imported, and/or foreign consultants and contractors employed for a particular project, or alternatively, resources may be obtained from within the nation.

Each country can choose an appropriate technology for its industry to reflect national preferences. That construction activities have to take place in the geographical location of the intended structure (see 3.6.5) means that they can be used to transfer appropriate skills, techniques and materials throughout the country, once choices of what is 'appropriate' have been made.

In all countries there are building regulations and bye-laws to guide the proper allocation and utilisation of space and minimum standards of materials and workmanship in a bid to safeguard health and safety. These are instrumental in limiting the choice of materials and techniques[32].

Finally, since the products of the construction industry interact with the way of life of the people in a community (see 3.3), the rationalisation of its production (ie the choice of an appropriate technology) should, unlike other industrial processes which depend only on the relationship between man, equipment and technology, consist of:

> "... a unity between man, equipment, technology, the economy, as well as a whole set of social, psycho-physiological and cultural-aesthetic requirements."[33]

This underlines the dynamic nature of the issue of developing the construction industry.

3.6.8. Data on Construction

The nature of the construction industry, as indicated by the above discussion, is one of complexity and variability: a service industry interrelated with, and interdependent on several sectors of the economy, with demand for its products varying by type and size, as well as over time and space. Construction activity also takes place in a multitude of production units in several isolated areas, and the common practice of subcontracting, with risks of omission or double-counting, exists with the incidence of copyrights and instances where information is withheld for reasons of confidentiality. All these factors make the estimation of data on construction difficult[34].

Information on construction, furthermore, quickly becomes obsolete due to changing standards, attitudes and government policy. Thus, it is difficult to obtain a suitable basis for policy-making for the industry, and it is not possible to extend planning for the industry beyond an indication of flexible targets and guidelines.

3.7. Problems Facing the Industry

As a result of its features, in no country is the construction industry efficient and free from major problems. In the United States,

> "... the characteristics of the constructed products themselves, including custom-built nature, immobility, costliness, complexity and continuously changing technology ... has resulted in firms [that] ... are small and numerous, serve a local and specialised market, lack vertical integration, are based on a limited degree of capitalisation, have a low overhead and profit margin, rely on a floating labour force, do little mass production, and are transient in nature."[35]

A similar observation has been made about the construction industries of the developing countries. Germidis (1974)[36] found that in the developing countries building firms are short-lived due to fluctuating demand[37]. The relative labour-intensity of construction activity is world-wide[38], a situation which has led to increasing construction wages without corresponding rises in productivity, and engendered increases in costs[39]. The implications this has in the poorer countries (with lower incomes) are obvious.

The Economic Commission for Africa (1965) noted that some of the problems facing the construction industry on the continent included:

> "The absence of local production of materials, high cost of imported materials, low productivity of labour, high proportion of overheads and profits, lack of managerial and technical skills, use of ineffective and ill-adapted designs, the application of obsolete building regulations and bye-laws, the inadequacy of present programmes of research ..."[40]

A survey of the construction industry in the United Kingdom (1962) highlighted a catalogue of problems, many of which could be found in the above quotation:

> "... shortage and high cost of land for building; planning procedures cause delay and frustration and increase costs; bye-laws are irrational, restrictive and diverse; there is a need for standardisation and simplification of procedures; lack of cohesion between professions, contractor and sub-contractor ...; insufficient capital and low profit margins; excessive reliance on credit and retention money; lack of cooperation between the industries and research stations; ... (and inadequate) research into building economics, practical problems and human relations."[41]

Thus, in no country is the construction industry altogether free from any major problems. Some of the issues are of concern in all countries but, generally, the problems are more severe in the developing

countries, and resources more scarce. Thus, just as in general socio-economic development, the industries of all countries are still developing in some ways (see 1.3.5); the issues facing the developing countries are, however, more fundamental and/or more critical.

The time dimension puts another strand of the question into focus. The environments of the construction industries are dynamic, and the tasks facing them are continuously being transformed. Today, the industries of the advanced countries are facing problems that will, sooner or later, assume importance in the developing areas. New materials, systems, industrial processes, managerial and organisational approaches are needed to deal with factors such as : changing composition of total demand for construction (with refurbishment claiming a larger share); designs and techniques that conserve or generate energy; political and social pressure for better living conditions in built-up areas (necessitating more consultation of users and interested parties) and for a reduction in occupational risks and the creation of more meaningful and pleasant jobs.

Thus the problem of developing the construction industry is also one of enhancing its adaptability to enable it to cope in an environment which is in a state of rapid flux (as socio-economic development proceeds).

3.8. The Task

The issue of improving the construction industry has three major facets, imposed by the nature of the industry, the types of resources it requires, and its changing environment.

In the short term, when all constraints are present and resources cannot be increased, the main task of the construction industry is to improve its efficiency, economise in the use of resources, and give value for money.

In the medium term, if the capacity of the industry is to be increased, the supply of the resources it requires should be enhanced. This takes time, and calls for capital and other inputs.

Finally, in the long term, the industry, while meeting an increasing volume of demand, should prepare, through research and adaptive responses, to cope with a changing environment: this might, before long, require the industry to adopt aggressive policies (such as marketing) instead of its present mainly defensive practices.

3.9. Conclusion

The attempts to improve the construction industry in developing countries have aimed at increasing its productive capacity. The vital role that construction plays in development makes it important that it should be enabled to perform its duties, if overall socio-economic development is not to be constrained. Not only does the nature of each country's construction industry (size, mobility and quality) have implications for development strategy, but also it is possible for construction to act as one of the leading sectors in the developing economy. However, the construction industry has certain features which make it vulnerable to external factors, and in no country is it free of major problems. Thus it is a difficult sector to legislate for, and to manage: seemingly harmless policies have serious ramifications for it, and unfavourable developments in it tend to have a lasting effect.

Finally, the task of developing the construction industry takes a different form depending on the time-scale under consideration.

3.10. Notes and References

1. See Hillebrandt, P.M., Economic Theory and the Construction Industry, Macmillan, London, 1974, pp. 8-9, 39-40, 62-64 and 69.

2. Turin, D.A., It Had to be Said, in Koenigsberger, O.H. and Groak, O.S. (eds), Essays in Memory of Duccio Turin, Pergamon Press, Oxford, 1978, p. 141.

3. In some cases, technical expertise could be hired from abroad. This has become more common in recent times.

4. Nellis (1972) suggests that the strategy adopted by most of the leaders of the independence struggles was: "... to increase the number and intensity of citizenry demands for goods and services to the point where the colonial administrators would have to expend so many resources that continued colonial administration would become unprofitable."

   The propaganda portraying 'better days' after independence formed a sort of public, almost contractual relationship between governments and the peoples, which could not be ignored.

   Nellis, J.R., A Theory of Ideology: The Tanzanian Example, Oxford University Press, Nairobi, 1972, p. 59.

   Davidson (1971) quotes the contents of a poster issued by the United Independence Party (UNIP) of Northern Rhodesia (now Zambia) in October, 1962: "Vote UNIP for ... Economic Stability and Prosperity for all. More Schools and better education. Decent housing and better hospitals. Democracy and Security for all. Independence." - Davidson, B., Which Way Africa?: The Search For a New Society, 3rd ed., Penguin, 1971.

5. Dean, E., Plan Implementation in Nigeria: 1962-66, Oxford University Press, Ibadan, 1972, p. 232.

6. Government of Ghana, Seven-Year Development Plan, Annual Plan for the SEcond Plan Year, 1965, Office of the Planning Commission, Accra, January 1965.

7. Government of Tanzania, A Mid-Term Appraisal of the Achievements Under the Five-Year Plan, July 1964 - June, 1969. Dar es Salaam, 1967.

8. Gorynski (1978) observed that: "For a long time, theoretical and empirical research have focused on manufacturing as the leader of economic growth. Construction was supposed to follow industrial development. Its lagging behind the growth rate of industrial production is attributed to the mobility and discontinuity of building sites and means of production ..." - Gorynski, J., The Role of Construction in Global Socio-Economic Development, in Koenigsberger, O.H. and Groak, O.S. (eds), op. cit. (ref. 2), p. 71.

9. Dalton, G., Economic Systems and Society, Penguin, 1974, p. 186.

10. Flores, E., Agricultural Production and Rural Industries, in Robinson, R. (ed), Developing the Third World: The Experience of the 1960's, Cambridge University Press, Cambridge, 1971, p. 150.

11. Ibid., p. 150.

12. See, for example, Schumacher, E.F., Small is Beautiful, Abacus, 1973; and Section 2.4. in this thesis.

13. Lewis, W.A., The Theory of Economic Growth, London, 1955, pp. 208-9.

14. Turin, D.A., Construction and Development, Building Economics Research Unit (BERU), University College Environmental Research Group (UCERG), London, September 1973, p. 9.

15. Schumacher, E.F., op. cit. (ref. 12), p. 181.

16. Drewer, S.P., The Construction Industry in Developing Countries: A Framework for Planning, BERU, UCERG, London, April 1975. p. 27.

17. Ganesan, S., The Building Industry in Sri Lanka and Problems of Common Interest to Developing Countries, in Koenigsberger and Groak (eds), op. cit. (ref. 2), p. 62.

18. See Hillebrandt, P.M., op. cit. (ref. 1), pp. 10-12.

19. Since construction products themselves are beyond the means of the average worker, this would be the result unless sectors of the economy creating consumer goods expand at the same time.

20. Clients rely on mortgages and long-term loans to purchase construction goods: these are affected by government's fiscal measures such as restricting bank credits and altering the (lending) rate of interest.

21. Szöke, K., Building Economics, in Alsop, K. (ed), Construction Research International: Proceedings of the 7th CIB Triennial Congress, Edinburgh, September 1977, Vol. 1, The Construction Press, Lancaster, 1977, p. 170.

22. See, for example, Grinyer, P.H., Systematic Strategic Planning for Construction Firms, Building Technology and Management, February 1977, pp. 8-14.

23. National Economic Development Office (NEDO), The Public Client and the Construction Industries, HMSO, London, 1975, p. 69.

    This publication discusses in detail the effects of inadequate and excessive total demand on the industry (p. 16).

24. Ibid.

    See also Economic Commission for Europe, Long-term Prospects and Policies in the Construction Sector, United Nations, New York, 1976; and Huxley, J., Building Lobby Will Put Plea to Chancellor, The Times (of London), 28 November 1977, p. 19.

25. The extent of 'nomination' of subcontractors and suppliers varies from country to country, and within one country, from one project to another. On certain contracts all works are subcontracted, the general contractor being inexistent or acting only as a project management consultant. This is common in Germany and on some large international projects in developing countries.

26. United Nations, Government Policies and the Cost of Building, UN, Geneva, 1959, p. 9.

27. Turin, D.A., Building as a Process, (mimoegraph).

28. Higgin, G. and Jessop, N., Communications in the Building Industry, Tavistock, 1975, pp. 37-8.

    Morris suggests, too, that: "The identification at each level of the building process of who is responsible to whom and for what is intuitive in the main." - Morris, H., Who Does What in the Building Industry, Building, 14 December 1973.

29. The Tavistock Institute, Interdependence and Uncertainty, Tavistock, London, 1966.

30. Sills, P. and Vegoda, M., Communications in the Industry, Building, 23 February 1973.

31. See Drewer, S., op. cit. (ref. 16), p. 21.

32. See Abrams, C., Housing in the Modern World, Faber and Faber, London, 1964, pp. 115-6 for a discussion of the evolution of building regulations and their effect on the construction industry.

33. Economic Commission for Europe, op. cit. (ref. 24), p. 88.

34. For a fuller discussion of the difficulties involved in collecting statistical data on construction see United Nations Department of Economic and Social Affairs, Construction Statistics: Studies in Methods, UN, New York, 1965.

35. Rossow, J.K. and Moavenzadeh, F., The Construction Industry: A Review of the Major Issues Facing the Industry in the United States, Department of Civil Engineering, Massachusetts Institute of Technology, 1974, p. 4.

36. Germidis, D.A., Labour Conditions and Industrial Relations in the Building Industry in Mexico, Development Centre of the Organisation for Economic Cooperation and Development, Paris, 1974, p. 25.

37. Thus, fluctuating demand has a more profound effect on the individual firms in the developing (as compared to those in advanced) countries.

38. Weismann (1978) observed that: "Current building technology for housing, community services, transport and communications requires (dollar for dollar spent) significantly more labour than any other industry." - Weismann, E., The Next Step, in Koenigsberger and Groak (eds), op. cit. (ref. 2), p. 181.

39. This was so in the United States where: "... construction is still a comparatively labour-intensive operation ... and thus the supply of labour is of constant concern to the industry ... rising wages without corresponding rises in labour productivity is a major contributor to the rising prices of construction projects." - Rossow and Moavenzadeh, op. cit. (ref. 35), pp. v-vi;

    A similar situation existed in Nigeria. See Olayide, S.O., Economic Survey of Nigeria, Publishing Company, Ibadan, 1976, p. 93.

40. Economic Commission for Africa, Housing in Africa, UN, New York, September 1965, p. 98.

41. Emmerson, Sir H., Survey of Problems before the Construction Industries, Report prepared for the Ministry of Works, HMSO, London, 1962, p. 7.

CHAPTER 4

A MATRIX OF THE CONSTRUCTION INDUSTRY

> "This paper will first review briefly the role that the construction industry plays in national development. It then discusses the issues facing the industry especially at the early stages of development. Finally, it suggests a few areas for discussion and for national action. The paper is primarily limited to the monetary sector or 'formal' sector of the construction industry. The self-help and non-monetary construction, its contribution to fulfilling the national needs and its potential as a means of narrowing the gap between the demand and supply for shelter is not discussed."
>
> - Mo avenzadeh, F., Construction Industry in Developing Countries, in World Development, 1978, Vol. 6, No. 1 (pp. 97-116), p. 97.

> "Even attempts to understand today's African as a mixture of primitive and modern runs the risk of overlooking him as a new kind of person dealing with new kinds of problems requiring new kinds of solutions ... our lack of understanding challenges academic theories developed in too small a sphere too long ago."
>
> - Miner, H., Introduction, in Miner, H. (ed), The City in Modern Africa, Pall Mall Press, London, 1967, pp. 1-2.

4.1. Introduction: The Need for a Matrix

Construction activity has been classified, in earlier parts of this thesis, according to the broad types of goods ('capital' or 'social') it produces (see 3.2.). Other usual means of classification consider the types of technical production functions required: 'building', 'civil engineering', 'repair and maintenance', or the size of the projects (usually in financial terms). The type of client is also commonly used to classify construction activity: hence there are 'public' and 'private' sector works. Writers on construction in developing countries are often content to consider a dualism, referred to as 'modern' and 'traditional', 'formal' and 'informal', and so on (see 3.4). It is also possible to consider construction on a geographical basis, each country's

industry being visualised as a series of regional or district sectors (see 3.6.5). Thus, the type of classification or categorisation depends upon the purpose of the analysis.

To study the construction industries of the developing countries it is helpful to consider the inputs that are required. The industry in each country then emerges as a number of sub-industries between which resources are not easily interchangeable: each uses a different mix of inputs and has its own peculiar problems and factors that constrain its output.

4.2. Turin's Matrix

A useful matrix for the construction industry of a typical developing country was developed by Turin (1973)[1]. Considering ways in which the capacity of the industry might be increased, he delineated four different sectors, identified the major resources they utilised, and pointed out those most likely to limit the expansion of each sector. He thought it possible that:

> "... within the same national aggregate of effective demand for construction a sector might be overstretched while another is seriously under-utilised, a situation too often observed in many developing countries."[2]

These four sectors were:

(1) International-modern. This sector builds major civil engineering works and large buildings in the urban areas, utilising imported materials and components, plant and equipment, and large numbers of qualified professional and managerial personnel. Expatriate contractors dominate the sector, and the major constraint is foreign exchange.

(2) National-modern. The projects here are mainly middle-sized urban buildings calling for some imported materials and plant, and a high proportion of skilled personnel; the contractors are usually

local, and the constraints are the availability of foreign exchange, technicians and managers.

(3) National-conventional. This sector is characterised by a mixture of traditional materials and techniques and a few modern inputs, and embraces small contractors and local artisans. It handles most private houses in urban and semi-urban centres and rural infrastructure, and its constraints are similar to those of the national-modern sector; and

(4) Traditional. This is prevalent in the rural areas, and mostly occurs outside the sphere of the monetary economy.

4.3. An Appraisal

Turin's matrix is simple and useful for some analytical purposes. However, the following observations may be made about it:

(a) although it does not particularly say so, it focuses attention on the resources required in the physical execution of construction projects. Hence it does not consider factors such as the availability of design expertise, the effect of planning and building codes and regulations, and the type and efficiency of client organisation, all of which have implications for the effectiveness and capacity of each sector;

(b) resources are more easily interchangeable between the sectors than the matrix suggests. For example, labour-intensive methods can be used on projects designed, and easily classifiable, as international-modern (such as a dam), and capital-intensive methods on projects not designed or easily identifiable as such (such as a feeder road, which would belong to the national-conventional sector);

(c) the matrix portrays a frozen picture of the structure of demand, and of the industry, although both are variable. For example, international-modern projects, and hence international, usually expatriate contractors, may not feature in a country's portfolio of

construction demand in certain years. Among construction firms, there is movement between the sectors from time to time (depending on the project, but generally, firms tend to grow out of the sectors) and one firm may belong to more than one sector at a time;

(d) the importance of time as a dimension is, again, neglected in considering the effect of the constraints. Certain resources or alternatives for them that are major constraints in the short term (especially foreign inputs) may be developed (locally) and become less so in the medium or long term. Such a time-based approach would help in the identification of priorities in the formulation of programmes for developing the industry (see 3.8); and

(e) the matrix is not sufficiently wide to embrace all the variables that affect the capacity of the construction industry.

4.4. Proposed Matrix

A new matrix is now proposed, which also adopts a resource-capacity approach to the construction industries of developing countries[3]. It consists, first, of two main sectors: 'formal' and 'informal'.

4.4.1. The Sectors

For projects in the formal sector, designs are prepared and permits sought, although contractual arrangements need not be formal, nor need the contractor be a registered or formally organised company.

Projects in the informal sector may not be formally designed, nor are permits sought. They are mainly undertaken in the rural areas.

The difference between the two sectors is generally regulatory. The latter is not hampered by conventional regulations and organisation of the construction industry is more spontaneous and relies on the client's initiative. Though more widespread, this sector is often

ignored by writers, governments and planners, and its products are unlikely to be sufficiently covered by national statistics. (See 3.6.8)

The two sectors may then be divided into six sub-sectors:

Formal Sector: International
Conventional Large
Conventional Medium or Small
Self-help Projects

Informal Sector: Monetary Traditional
Subsistence.

4.4.2. The Subsectors

(1) International

These are one-off projects at the upper limit of the technological continuum (see 3.6.7) such as special factories (for example petro-chemical works), harbours, hydro-electric power stations, motorways and tall luxury buildings (such as conference complexes). The construction firms are usually foreign-owned: a foreign company or its locally-based subsidiary, although a few indigenous construction firms have developed the competence for some of these projects. They require large numbers of skilled professional and managerial personnel, imported plant and equipment, and some imported materials and components. The client is either the government or a large local or international organisation.

In the short and medium term (pending the improvement of terms of trade or development of local inputs), foreign exchange is a constraint on the expansion (of both demand and capacity) of this sub-sector but where this does not apply, the executive capacity and operating procedures of the administering bodies are important.

(2) Conventional Large

These are more widespread and less sophisticated than inter-

national projects. They comprise large offices, school blocks, hospitals, factories, major highways and bridges. They are undertaken by the largest of the local firms and locally-based foreign ones, using some technical and management staff, skilled operatives, some plant and equipment and some imported materials.

The short- and medium-term constraint is foreign exchange, although less so than for the international subsector. With the public sector financing the bulk of projects in this category, the efficiency of its administering bodies becomes more important. An additional short-term constraint is the availability of middle-level personnel and large local construction firms.

(3) Conventional Medium or Small

These are houses, schools, minor roads, and other minor works, undertaken in urban and semi-urban areas. The construction firms are small and local-owned, or loosely organised cooperatives and self-employed artisans. Techniques are more labour-intensive and materials used range from imported through rationalised-traditional to traditional.

The main constraint on capacity is the availability of skilled tradesmen, whereas formal contractual arrangements and administrative procedures also pose problems to contractors. (See 3.6.6) The major barrier to increase in demand is the availability of mortgages and other forms of loans to prospective clients. (See 3.6.2)

(4) Self-help Projects

These are usually in the form of communal social amenities such as health centres, schools, post offices, amusement places and feeder roads. They are initiated and constructed by the rural populace; government provides technical aid in the form of documentation and/or supervision, and some materials, tools and equipment. Few skilled personnel are involved.

The limits here are imposed by local initiative and enthusiasm, and the effectiveness of government's extension services for such projects.

(5) Monetary Traditional

In this category are houses, barns and similar small buildings and works, undertaken by self-employed artisans using mainly local, easily available traditional materials. It is predominant in the rural areas and the settlements on the fringes of the urban centres.

This subsector is threatened by the preference for conventional materials. Traditional building skills are being rapidly lost, although, to the majority of the populace, this is the only subsector in which they can exercise effective demand for construction. (See 3.6.2)

(6) Subsistence

This is similar to the monetary-traditional except that here the owner or members of his family or an informal cooperative society, undertake the construction of the structure. It is also similar, in some senses, to the self-help subsector, in that some common facilities (such as places of convenience and recreation) may be constructed through communal labour but with traditional materials.

This sector faces the same constraints as the monetary-traditional. In addition, the initative of builder/owner(s), the time at their disposal, and the cooperative spirit of the society, are important. (See Figure 4.1 for diagram of the Matrix).

4.5. Overlaps, Continuity and Dynamism

Although an attempt has been made to formulate a basis for categorising the construction industry, the boundaries suggested are merely imaginary: the various subsectors overlap in several ways. For

FIGURE 4.1. A Matrix for the Construction Industries of Developing Countries

TYPE	RESOURCES	LIMITING FACTORS
International (Modern, technically sophisticated: dams, motorways, special factories, conference complexes, luxury hotels)	Foreign-owned contracting firms. Some foreign consultancy. Imported materials and equipment. Professional and managerial Personnel.	Foreign exchange (S/MT). Executive capacity of client organisation. (L/MT). Professional and Managerial skills (MT).
Conventional - Large (Modern, large: offices, highways, factories, blocks of flats)	Large local contractors. Some imported materials. Plant and Equipment. Skilled Personnel.	Foreign Exchange (S/MT). Professional skills (MT). Intermediate skills (MT).
Conventional - Medium or Small (Modern, medium or small: schools, feeder roads, houses)	Small local contractors. Imported/Local Materials. Few skilled managerial or technical staff. Skilled operatives.	Skilled Operatives (MT). Intermediate skills (MT). Efficiency of Contractors (LT).
Self-help (Social communal facilities, roads)	Government technical aid. Local/imported materials Voluntary labour by community.	Government's extension services (LT). Local initiative and enthusiasm. (Cooperative Habit) (L/MT).
Monetary - Traditional (houses, shops and similar small buildings	Traditional materials and tradesmen.	Attitudes of clients and users (LT).
Subsistence (houses, barns, communal facilities)	Traditional materials. Owner/Cooperative labour.	Attitudes of clients and users (LT). Clients' initiative and Leisure Time (ST).

Abbreviations: ST = Short Term
MT = Medium Term
LT = Long Term
S/MT = Short and Medium Term
L/MT = Long and Medium Term

example, some conventional materials and skills, such as corrugated aluminium roofing sheets and carpenters, or cement and masons, are used on traditional projects.

The relative size of each subsector existing or desirable in each country is variable with time, depending on demand and the availability of resources, and the mix of subsectors will vary from one country to another. Thus the classification 'formal-informal' is not meant to portray a desirable shift from the latter to the former, or to lament the existence of the latter. Furthermore, although in the former sector the categories appear to establish a hierarchy, it does not mean that all inputs should necessarily be progressively upgraded. The existence of the conventional-medium or small category is necessary and natural; that of the international category may not be quite so at all times; since projects in that sphere may be few and far between (see 4.3.(6)).

There is also much dynamism in the matrix: individuals may be employed in the formal sector on weekdays, and in the informal at week-ends; construction firms may operate in the conventional-large category on one project and in other categories on other projects, both at the same time and in future; and design and other consultancy firms operate in all categories of the formal sector all the time. Thus the matrix is not as rigid as it appears, nor is it a prototype for all developing countries at all times.

4.6. Conclusion

The usefulness of the proposed matrix lies in the help it can give in the formulation of programmes for developing the construction industry. By identifying broad categories of construction activity and the resources used it is possible, in each country, to determine the relative strengths and weaknesses of each subsector - in terms of both supply and demand - and to establish priorities and evolve a policy which

concentrates on particular subsectors or resources as the structural framework on which the expansion of the whole industry is based. (See also 3.8).

4.7. Notes and References

1. Turin, D.A., The Construction Industry: Its Economic Significance and its Role in Development, Part I, Text, 2nd Ed., BERU, UCERG, London, September, 1973, pp. D.15-18.

2. Ibid.

3. The matrix is developed from the author's knowledge of the construction industries of Ghana and other sub-Saharan African countries, and is particularly applicable to that area.

CHAPTER 5

CURRENT APPROACHES TO THE IMPROVEMENT OF THE CONSTRUCTION INDUSTRIES OF DEVELOPING COUNTRIES

> "28 per cent of the world population lives in countries which account for 82 per cent of the world estimated GDP. Conversely, the least developed nations account for more than half the world population but only 8 per cent of the world total product ... these inequalities are even greater in terms of construction activity with the richer countries ... accounting for nearly 90 per cent of the total world construction activity and the poorer countries in Asia and Africa for a mere 5 per cent."
>
> - Andrews et al., Construction and Development: A Framework for Research and Action, BERU, UCERG, London, 1972, p. A4.

> "A glance at the 'Ghana Times' and the 'Evening News' will suggest the emphasis currently placed on the economic development in the country .... The general impression is that what in North America is normally on financial pages is simply news in Ghana ... that there is a constant emphasis on communal material acquisitions such as bridges, factories and schools, all of which will ultimately contribute to the general welfare, cannot fail to impress itself on the Ghanaian and the visitor as a symptom of the community's deepest concerns."
>
> - Tiger, L., Bureaucracy and Urban Symbol Systems, in Miner, H. (ed), The City in Modern Africa, Pall Mall Press, London, 1967, p. 202.

5.1. Introduction

Studies of the construction industries of the developing countries are even more recent than those of general economic development. They have been few, and have basically taken the form of comparing what exists in the developing countries with what pertains, or is desirable, in the industrialised countries, cataloguing and analysing the problems, and suggesting solutions. A review of literature on the subject reveals a similarity in the major findings, and recommendations made by the authors.

5.2. Reasons for Studying Construction

Attention was drawn to the construction industries of the developing countries by two main issues, both of which were related to the development effort:

(a) Housing: the development process in the poor countries had created a few areas of modern economic activity to which people from less privileged areas migrated for employment and better social amenities (see 1.3.2 and 2.2.2). This 'urbanisation' had created an acute housing shortage and deplorable living conditions in the cities and larger urban areas of the developing countries. The inability of the construction industry to cope with the very high level of demand was seen as one of the reasons for this housing shortfall.

(b) Construction and Development: statistics showed that the developing countries accounted for even less a proportion of global output in construction than total global product, and that, generally, the construction industry in any developing country contributed less to the national economy than its counterpart in a typical developed country. This gap needed to be redressed. Construction was also found to be capable of acting as a leading sector in socio-economic development. Its improvement was, thus, vital. (See 3.5)

On some occasions, though, the developing countries' construction industries have been studied because of their employment-generating potential, obvious inefficiency, or high costs. Some countries or international organisations have commissioned studies on the subject in order to achieve a more efficient use of their financial aid or other assistance. From whatever approach the issue was studied, the diagnosis of the situation, as well as the suggested cures, have generally been similar.

5.3. Housing

Several studies have been made of the housing situation in the developing countries. Whereas some do not go beyond broad statements urging economic growth, more equitable distribution of income (and hence higher average purchasing power), government-assisted programmes of financial, other material, or technical nature, self-help and general references to improvement of the construction industry[1], others essay comprehensive programmes for the development of the local construction industry. A few of the latter are considered below. The concern here is only with the extent to which reports on the housing situation have incorporated recommendations for improving the construction industries of the developing countries.

5.3.1. Broad Approaches

Some paradigms on the development of construction to satisfy housing needs in the developing countries have looked at ways of ensuring improvement in all aspects and areas of the industry.

5.3.1.1. Role of governments and foreign agencies

The United Nations Group of Experts (1962)[2] estimated that by 1965 the developing countries would require 24 million dwellings annually (10 dwellings per 1000 inhabitants) to house the increases in population, to remedy existing shortages and deficiencies and to offset obsolescence. There was a negative trend in meeting housing and urban development needs, due mainly to insufficient resources or failure to utilize available resources to respond to growing needs.

The construction industry, the Group observed:

> "... appears to be the least developed industry everywhere in terms of mechanization, productivity and the benefits derived from building progress by the ultimate user of its product .... Progressive methods, except in a few cases, have ... been slow in developing and have not been general enough."[3]

This was the case although construction was economically important as an instrument of capital formation, a user of investment capital, and a generator of employment. Construction had not received sufficient attention in many development programmes but being labour-intensive, its capacity could be increased more rapidly than those of most other industries, and with less capital investment.

A programme for improving the building and building materials industries and expanding their capacities would be implemented by governments with international technical and financial aid.

Governments should ensure that economic growth was balanced, with relevant social, economic, locational and environmental (physical planning) priorities. A central ministry or department should be established to coordinate, integrate and, if appropriate, execute planned projects. A national building council should also be established to implement measures for improving the construction industry, such as: revision of contract procedures and building codes; organisation and direction of building research; measures to increase or improve the production of building materials and industrialisation of building operations; training requirements; integration of the building process (involving contractor in the design); working conditions necessary to ensure high productivity; standardization of building materials and components and modular coordination of design; establishment of systems of costing or productivity; and dissemination of information and experience, both national and international.

Existing resources in the industry should be assessed to relate planned construction output to available resources and avoid competition between different construction claims and inflation, or possible delays. Technical standards should be established in the light of all relevant social, economic, health and technical considerations.

Government should prepare and implement adequate long-range

national programmes for mobilising and training personnel for the industry at all levels, the programmes providing incentives and conditions for workers to improve their efficiency through technological and other changes. The fuller and more efficient use of abundant labour should be an immediate goal. The integration, at the university level, of the different disciplines involved in urban regional planning and development around practical problems would provide the student with an opportunity for observation and research.

Governments should also intensify research to improve the efficiency with which productive resources are used, including advance preparation of drawings and specifications in detail, construction programming, site layouts, more rational use of labour, accident prevention programmes and the application of work study. Other important issues included: the development of cost consciousness among all persons working in the building industry; better site organisation; ordering and delivery of materials on site in good time; obtaining the necessary machinery and recruiting the required labour force; project planning and control; and good labour-management relations.

The effectiveness of these approaches and measures depended, to a large extent, on the ability of government to mobilise domestic resources and to use external aid effectively. National efforts

> "... could gain substantially from international knowledge and experience; from freer trade in materials, equipment and skills; and from an easier and larger international flow of capital."[4]

5.3.1.2. Regional cooperation

After a review of the housing situation in African countries, the Economic Commission for Africa (1965)[5] concluded that demographic and socio-economic factors had contributed towards the utter qualitative and quantitative inadequacy of housing in most countries. In all parts of Africa dwellings were overcrowded and lacked the most elementary

amenities.

The building materials industries were undeveloped, local production failed to meet total demand, and costs of local production were high due to limitations dictated by scale of operations, lack of technical and managerial skills, and inefficient plants. 55 to 60 per cent of all materials for construction were imported, materials constituting 45 to 50 per cent of construction costs. There was surprisingly little intra-African trade, even for commodities which the continent exported such as timber or produced below installed plant capacities such as cement.

In the production of building materials attempts should be made to reduce the costs of production and transportation, and to use comparatively simple technology better adapted to smaller outputs and limited local markets. There was scope for research into the establishment of small and medium production units for items like cement, concrete products, timber and sanitary and electrical equipment.

Building costs were high because of the reliance on expensive imported materials, low productivity of labour, high overheads, lack of managerial and technical skills, the use of inappropriate designs, inadequacy of research, and obsolescence of building regulations and bye-laws.

Indigenous contractors lacked capital and competent supervisors, and could not rationalise their working methods because of discontinuities in their activities. Efforts should be concentrated on reducing construction costs by improving labour productivity through large construction programmes which implied frequent repetition of operations, and by using programming, material scheduling, cost control and effective supervision.

> "A large part of the responsibility for improving the present situation lies on the client side, especially the public client."[6]

The problems were not only of a technical nature but also of a social, administrative and economic kind.

There was a need to train administrative and technical personnel in the essentials of modern organisation techniques, drawing from the experience of more advanced countries. Furthermore, there should be greater regional cooperation among African countries to promote complementarity of development rather than competition.

5.3.1.3. Reducing costs

In a paper on housing in Africa, Turin (1967)[7] noted that in a continent with relatively high rates of population growth (3 per cent in Ghana, for example) and urbanisation (up to 10 per cent), there was a wide and increasing gap between housing needs and housing programmes. Moreover, the cost of dwellings built by conventional methods was too high (in most countries the 'low-cost' house was 2.5 to 4 times the annual income of the skilled worker and 5 to 8 for a non-skilled worker). The gap between needs and means had resulted in the creation of 'unauthorised' settlements.

Turin observed that the building industry in Africa was embryonic, badly organised, under-equipped and short of skills at all levels. The larger construction firms were expatriate; the emerging African contractor lacked experience, finance and managerial know-how.

As a consequence of past colonial policies, Africa relied on imported building materials, which accounted for 6 per cent of total African imports, although the continent had sufficient raw materials which, if suitably exploited, could serve its present and future needs. It was clear that

> "... in many African countries a satisfactory human environment in urban areas could be obtained at half the present cost."[8]

But this could only be achieved in the long term, after research into

functional requirements, quality standards, better designs, more economic services, better layouts, high densities, and so on.

Since up to 60 per cent of building costs was due to materials, most of which were imported, local production of materials would reduce the materials component of building costs, as well as have multiplying effects on the economy as a whole. At the same time, efforts should be devoted to "... reducing the labour component, characterised by an extremely low productivity which more than offsets the low level of wages as compared with developed countries."[9]

In a discussion of his paper, however, Turin admitted that the application of industrialised methods was limited by a shortage of foreign currency for the acquisition of the essential production machinery, comparatively small sizes of national building programmes, and relative abundance of cheap unskilled and semi-skilled labour[10]. Energy would also be a major problem.

International financial aid could only make a marginal impact on the problem since it was limited, and tended to be directed to more obviously productive sectors.

5.3.1.4. Summary and observations

The foregoing strategies were, essentially, 'growth-based' (see 1.3.2-3), suggesting that the urgency of the housing situation called for an all-out effort on all fronts of the construction industry: the resources needed for such an exercise could, and should, be provided by governments and international organisations; procedures were inappropriate but could, and should be changed. Altogether, the construction industry should produce more, and better houses: the obvious constraints acting on it only had to be removed for this objective to be achieved. Developing the housing sector would promote other sectors of the construction industry, and provide the impetus for

economic activity in the country generally. Therefore, it is said, matters concerned with housing (and hence construction) should be given priority by governments in their development plans.

It is possible, here, to make some observations.

The housing situation cannot be divorced from the economic characteristics of the developing countries. The countries are poor, and lack most of the resources required to mount the programmes suggested. This does not mean the programmes were logically wrong, nor does it mean that nothing can be done. The assumptions and premises of the studies relied on the experience of the industrialised countries, and since the situation in developing countries was different, the programmes called for certain changes and the injection of certain inputs before they could be successfully implemented.

Changes, however, are not easily achieved where traditions, cultures, history and peoples' aspirations are concerned. (See 1.4.6). Alternatives to these 'growth' models have, therefore, been proposed, which consider the peculiarities existing in the developing countries, and attempt to utilise their greatest strengths. Some of these are now considered.

5.3.1.5. New frontiers

Abrams[11] observed, in 1964, that after studying and reporting on the housing problems of fourteen nations in four continents, he had identified no panaceas for the housing problem in the developing countries. The task was

> "... great and the way full of hazards as well as productive frontiers. The burning ideal must always be damped down by the realities of enterprise and investment."[12]

One of the productive frontiers appeared to be the salvaging and strengthening of the cooperative practices of tribal life. These had been disrupted by the sudden social changes that accompanied industrial-

isation and urbanisation.

There were no magic remedies: housing was a long-term, continuing development which required mobilisation of each country's own resources of land, skills, materials and finance mechanisms. It was necessary that experts have a comprehensive knowledge of the country's needs and priorities.

> "It is not only what the aid expert feels is right for the country that counts - what he recommends must also be what the country can manage to do successfully.
>
> "Each country has values, culture, customs and ways of life which, when built upon, can make the difference between a programme's success and failure. Tribal relationships and kinships, building traditions, cooperative devices,particular saving habits, and other characteristics must be discovered and, whenever possible, adapted and utilised in the formulation of assistance programmes."[13]

There was a dearth of research on the building industries of the developing countries. This tended to give those that were available the character of gospel, and to increase the temptation to standardise remedies: if a programme worked in one place it was regarded a precedent for other places. Unfortunately,

> "A formula that is simple and practical in England may bog down administratively in Ghana. Corruption, ignorance, lack of skills, politics, opportunism, centralisation, the stubbornness of custom or disrespect for prevailing traditions, and other intangibles may doom the best findings ..."[14]

Abrams made some recommendations. There should be a land policy that could make properly planned land available at reasonable cost, incorporating sound tenure, regulation, use, acquisition, taxation and financing of land. A financing or assistance scheme (eg the Roof Loans Scheme of Ghana) should be established to assist prospective building owners. Local building methods and the use of indigenous materials should be studied in building research stations. Technical training centres and trade schools should be established (or improved) to train professionals, technicians and tradesmen; there could also be on-the-

job training on self-help projects supervised by trained foremen.

Efforts should be made to reduce construction costs by: economising in design, standardisation and some prefabrication, more efficient organisation of labour and materials on the site, reducing the cost of materials in factories, developing and using cheaper building materials, economising on utilities, and reducing administrative costs and overheads.

In the field of materials and techniques, ceiling heights could be reduced; lime mortar could be used for masonry and rendering instead of cement; stabilised earth blocks could also be used. A grinding plant for clinker could ensure a better synchronization of supply and demand; timber costs should be reduced; and simple earthenware sanitary fittings, as well as metal hinges, locks and bolts could be locally produced. Small local kilns for brick and tile production could be established.

Abrams admitted, however, that

> "... These recommendations were all made in Pakistan, the Philippines, and Ghana by visiting experts. But recommending a programme is one thing, fulfilling it another. What these countries need besides advice is technical ability and administrative apparatus."[15]

Ideally, there should be, under the jurisdiction of the United Nations, a specialised agency for urban development with funds to finance missions by experts to the developing countries, and powers to implement the recommendations of these missions. There should also be an international bank with powers to borrow, lend, or guarantee investment in urban development and housing, its membership open to all countries. Eventually it should become the financing and implementing arm of the United Nations and other agencies. The industrialised countries should give more aid to aspects such as training, research and development of capital. The motivation for aid from such countries was, however, dominated by self-interest: there was, already, an

accumulating backlog of United Nations' recommendations in the urban field which could not be implemented for lack of funds, and of personnel who could put it to best use.

5.3.1.6. A Comment

Having mentioned the necessity for formulating programmes to harness peculiar cultural and traditional attributes, Abrams drew up a list of proposals which did not depart from those reviewed in 5.3.1.1-3, although, in his own estimation, such a programme would be difficult to implement, and is unlikely to have any impact on the housing situation.

A common element in all the approaches discussed so far, and some of the forthcoming ones is their call for international financial and/or technical aid to the developing countries (cf. Nurkse and Rostow. See 1.4.2).

It is a fair comment to make that it is unlikely for the volume of aid to increase considerably in the near future. (See Chapter 1, footnotes 32 and 39). Thus it appears a shaky foundation on which to base the success of a programme for any country.

5.3.2. Growth with Equity Approaches

In recent times, approaches to the issue of housing in developing countries have concentrated on the needs of the least privileged. In this sense, they are similar to the 'growth with equity' approaches to general socio-economic development. (See 2.4).

5.3.2.1. Standards, Traditions, Aspirations

A study of housing in developing countries (1977)[16] referred to the cities in those areas as noisy, smelly, animal-filled, over-populated and poverty-stricken but observed that it was unwise to impose procedures and strategies from outside. Instead,

> "... aspirations, resources, standards, topography, construction techniques, history, culture, costs and finance - all these and more need to be ... absorbed into some rudiment of synoptic understanding...."[17]

There was an imbalance between traditional buildings and official standards but traditions were an essential basic ingredient to the formulation of a workable strategy for attacking the housing problems. Standards constituted the battleground for the struggle between aspirations and resources. Efforts should be directed towards achieving

> "... maximum value from available resources, together with a sensible and balanced allocation of such resources. The allocation must reflect the priorities of the people ... ... as well as environmental issues of concern to the nation as a whole."[18]

Few standards with performance objectives should be adopted rather than those that emphasised dimensional and technical peculiarities.

An assessment of the expansion and increased capacity potential of the construction industry should be undertaken. This should consider such areas as: the structure of the industry in terms of size of firms; professional, managerial, supervisory and other skilled labour resources; the labour force and its output; sources and availability of materials and equipment; the technological level of the industry; and a survey of the informal sector. This examination would help in the formulation of measures to realise the industry's potential; for example,

> "... incentives to encourage amalgamations, training schemes, exploitation of import substitution opportunities by developing new sources of materials and their processing, ensuring continuity of work, etc."[19]

5.3.2.2. Current trends

Models like the above (5.3.2.1) have become increasingly popular. As the difficulty of achieving improvements in housing conditions from 'growth-based' approaches has become evident, the paradigms have shifted

from concentrating on expanding the capacity of the construction industry to reliance on the initiative and natural skills of prospective building owners, especially the poor in the 'unauthorised' settlements adjacent to the urban areas, and the rural areas;

> "... the many whose basic material and spiritual needs are not satisfied and who have no real chance to change their circumstances."[20]

Governments in developing countries are urged to realise that for a long time to come, the majority of their peoples will live in the rural areas, and urbanisation is also likely to continue. Housing policy should recognise and reflect these[21].

> "... this does not mean that housing policies should be abandoned. It means that these must be ... demystified, made to face up to the real country with all its differences in income, culture, ecology, and serve to support and orientate social progress ..."[22]

Thus, there should be a mixture of policies reflecting the different levels of incomes and the variety of ways in which housing needs could be satisfied.

> "... the crux of the matter is how to strike a balance among various alternatives: public sector provision of infrastructure and services, subsidised conventional housing, aided self-help construction, upgrading of existing settlements, the involvement of the private construction sector, and the mobilisation of popular initiatives."[23]

To help the poor in the urban areas the unrealistic building standards should be relaxed and assistance provided in the form of cheap land, secure tenure, and essential services (sites and services). In the rural areas, attention could be concentrated on improvements in planning and design, and in health and sanitation, as well as assistance to owners to secure more durable materials[24].

In Africa, it has come to be realised that:

> "(a) African society has a long and valuable tradition of communal action;
>
> (b) traditional building materials can be used for building conforming to adequate quality standards;
>
> (c) improvement of such materials is possible;

(d) local production of building materials is possible, but not yet organised on a large scale;

(e) human potential is available but not yet organised; and

(f) architecture is not new in Africa, but ignored in many countries."[25]

Thus it was possible to adopt an approach to housing corresponding to specific needs and utilising these strengths. This did not mean that easy solutions were possible.

"... tremendous efforts and, even more, a lot of ingenuity are needed to achieve positive solutions ..."[26]

Finally, although solutions would have to be attuned to each country's specific conditions, information on approaches and experience elsewhere would be valuable[27].

5.3.2.3. An Observation

Thus, paradigms on the issue of housing in developing countries have become pragmatic, evolving along lines similar to those on socio-economic development from the 'conventional' to the 'basic needs' approaches; from a concentration on the 'modern' sector to a comprehensive approach involving the whole of the society's attributes; from concern with the provision and/or expansion of certain 'missing factors' to utilisation of the peculiar conditions existing in the developing countries, and from attempts to crystallise a blueprint to emphasis on country-specificity, although referring to the usefulness of disseminating information on approaches and experiences in the various countries.

The 'growth with equity' approaches, however, have concentrated on ways and means of satisfying the housing needs of the poor, and have not broadened their approach to the issue of improving national construction industries. Thus, proposals on that issue can be found mainly in the 'conventional' paradigms.

5.4. Construction in Economic Development

5.4.1. Introduction

The second group of models of construction industry development stem from the role the industry plays in the economy. There have been several attempts to theorise on the structural changes that occur in an economy as it develops. The contributions made by agriculture and manufacturing to national product and to employment have been held as reflecting a country's level of development. (See 1.3.4, 2.2.2 and 2.3.2). Does the construction sector follow a similar pattern?

Chenery (1963)[28] analysed the contributions made by value added in major sectors of the economy to gross national product for fifty-one countries, and observed that construction was 4 per cent of national income at the $100 per capita income level, and about 6 per cent at the $1,000 level.

Kuznets (1961)[29] found that amongst a sample of thirty-four countries in post-war years up to, and including 1957, construction was about 8.5 per cent of gross domestic product in countries in the $100 and $200 annual per capita income classes and the $270 to $400 classes. It was 11.0 per cent for the $650 to $1,000 classes, and 11.9 per cent of the national product for the $1,700 per capita income class. But in every country construction was just over half of all gross domestic capital formation.

Strassman (197o)[30] studied the economies of a sample which "... includes all countries with a population of over one million for which virtually all figures needed had been published for most of the decade 1955-1964"[31] and reported that in the countries which he had grouped as Poor (per capita income $80 - $350), Middle ($350 - $900) and Advanced ($900 plus), construction was, respectively, 4.6, 7.1 and 7.1 per cent of gross national product on the average, and employed 3.9, 6.7 and 7.2 per cent of the economically active population.

Strassman postulated that manufacturing had typically been given a bigger boost in early stages of development. Construction followed after at least two decades, catching up in the middle income period of rapid industrialisation. Low productivity in construction, coupled with higher wages, however, tended to retard the sector in advanced countries. Construction, therefore, experienced "a middle-income-country bulge".

A study by Chenery and Taylor (1968)[32] also portrayed a similar bulge in the building materials production industries. Non-metallic products (including cement, bricks, tile and glass) were found to reach a peak share of gross national product at per capita incomes of $700 in 19 relatively large countries, and to fall later by about a third.

5.4.2. The Post-Industrial Era

Since the war, the economies of the western countries have undergone a transformation of their dependence on manufacturing (see 1.3.2) as the dominant activity to the emergence of the service industries as the major source of employment. The process of development has, therefore, been taken a stage further:

> "... more recently the industrial society ... has begun to give way to the post-industrial phase where the locus of employment ... shifts ... with a relative decline in the importance of the secondary or manufacturing sector in line with a corresponding increase in the importance of the tertiary or services sector."[33]

This is seen as another challenge to the developing countries: if they are to catch up with their more advanced counterparts then they should even go beyond industrialisation. Galenson (1963)[34], for example, compared manufacturing employment trends with tertiary employment and observed that manufacturing employment grew at higher percentage rates in developing countries but the absolute increases in tertiary employment were larger, and concluded that commerce and services had to absorb most of new employment.

The construction industries of the developing countries had to play their part in the industrial, and post-industrial transformations. This formed the basis of some theories on the subject, which have been of two main kinds:

(a) broad approaches: which consider the whole industry and endeavour to embrace all its aspects; and those that concentrate on

(b) specific areas of the industry which they consider most important, or which are simply the focus of their study.

5.4.3. Broad Approaches

5.4.3.1. Turin

Turin (1969 and 1973)[35] analysed the role of the construction industry in the economies of developed and developing countries. In one study[36] he observed that:

* value added in construction accounted for 3-5 per cent of gross domestic product in developing countries, and 5-8 per cent in industrialised countries.
* capital formation in construction represented 6-9 per cent of gross domestic product in developing countries, and 10-15 per cent in the industrialised ones; and accounts for 45-60 per cent of all capital formation in all countries.
* direct employment in construction was 2-6 per cent of total employment in developing countries and 6-10 per cent in more industrialised ones.
* construction bought between 50 and 60 per cent of its inputs from other sectors of the economy.
* developing countries directed 30-55 per cent of construction investment to civil engineering, whereas in developed areas it is 25-30 per cent.

> "... one can therefore appreciate the scope for development of the industry in the less favoured countries of the world [and] ... the distance to be covered in order to bring construction to a level comparable to that of the more industrialised countries."[37]

Generally, with increasing development construction output, value

added per person employed and per capita, and their share in national product increased; the gap between construction and manufacturing in terms of output and earnings tended to close; and employment in construction per thousand population increased.

These generic relationships should be considered in the formulation of policies for the construction industry in developing countries: inaccuracies in the data would not invalidate the general trends. Turin essayed a list of 'invocations'

> "... not addressed to anybody in particular, although by their very nature they are obviously aimed at 'policy makers': international agencies, national governments, professional elites, employers' federations - in brief all those who can influence the future of the construction industry."[38]

Governments should recognise the importance of construction in the national economy, and establish a Ministry to deal with it; the variety of possible technologies in construction should be recognised and related to the availability of materials, human and financial resources; the relative labour intensity of construction and hence its potential for useful and sustained employment generation should be recognised. The fragmentation of the construction industry should be accepted as a direct consequence of the nature of its products and inputs, and construction programmes used to promote local variety, encourage local skills, materials and techniques.

The reliability of national products, and the network of distribution of human and material resources should be improved. Efforts should be made to provide loans to building contractors, as is usually done to other producers, and to facilitate the flow of finance by simplifying approval procedures, streamlining contract documents, and ensuring prompt payment for work done. The public client should be used to introduce and encourage the utilisation of adequate technology, for setting up or strengthening small and medium-sized local contractors, for establishing suitable training schemes, and for promoting innovation.

Meaningless statutory instruments and regulations should be abandoned;

> "... imaginative policies could be evolved which, by recognizing the unique features of construction activity, would utilize them for specific economic and social objectives ..."[39]

The industry experienced technical, administrative, financial and legal constraints which operate in such a way that,

> "... in most developing countries the construction industry falls short of providing the services the society is entitled to expect from it."[40]

This failure of the industry to provide adequate building and civil engineering works tended to hinder the achievement of a more rapid and more equitably distributed social and economic progress. However,

> "...each of these constraints can, if wanted, be removed; but the process will take time and require considerable efforts."[41]

The problem was made more difficult by the fragmentation of the construction industry, the variety of participants involved in the process, complexity of statutory requirements, and the social and political implications underlying major construction programmes. Governments could promote the use of local materials indirectly through fiscal controls, and directly by insisting that they were used on public projects.

Local production of modern building materials and components should be tackled within an industrial perspective and in terms of effective demand and commercial outlets, investment in plant, financial credit, better management, raw materials and plant location, labour and capital requirements, and existing patterns of use of materials. Better design would enable developing countries to obtain a higher yield from a more rational use of resources.

Government's efforts could be supplemented by those of other institutions. Professional bodies, provided they were legally and financially strengthened, and were prepared to play a leading part in construction development, could initiate research and ensure its

application through their members. Trade associations should transmit knowledge on methods and procedures to their members; trade unions, too, had an important role to play. The problem, however, would require concerted national action and well-directed international technical assistance.

5.4.3.2. Planning

Drewer (1975)[42] reiterated the possibility of meeting the demand for construction through a wide range of technologies. The developing countries required construction activity to create the infrastructure and the industrial and productive facilities that were crucial to their development. Since the

> "... spread of work types and input requirements to sustain construction activity in developing countries is far in excess of that required in the now developed countries at similar levels of development,"[43]

It was possible that the scarcity of resources in the developing country would make it necessary for the additional output to be met through imports or changes in technology. Should this happen, construction could have a negative impact on development.

Priorities for different kinds of construction output should be identified in relation to national plans and resources, and because of the important role the construction industry played in every nation's economy, plans for its development should be considered in all national plans.

The importance of planning construction development was also emphasised by Ganesan (1976)[44]. Although fluctuation in construction output was normal in all countries due to policy and seasonal changes, misallocation of available resources could also constrain construction activity. Planning should aim at: increasing output through appropriate technological, institutional and financial frameworks; and improving overall industrial productivity, as well as those of scarce resources

such as foreign exchange and capital. The productivity of capital may be constrained by inadequate foreign exchange for the purchase of raw materials and spares, and lack of demand for the finished product. This could only be remedied through resource-planning of the industry.

Labour productivity could be improved through investment in plant and equipment, and through technical progress ;

> "... advanced engineering knowledge, better management, better organization, training of labour, etc. ... Where capital equipment is in short supply, one alternative is to enhance the quality and capacity of human capital."[45]

Developing countries should exchange information and expertise on matters such as the modernisation of the indigenous building materials sectors; research and manpower training; policy formulation for the construction sector; and growth strategies.

5.4.3.3. Computers

Moavenzadeh (1974 and 1978)[46] suggested that the indigenous construction industries should concentrate on the repetitious and routine building and civil engineering projects to fulfil volume needs, and leave out the more specialized and sophisticated jobs like dams and power stations (ie 'international' projects. See 4.4.2) to multi-national firms.

Local planning and design capabilities were inadequate, and needed improvement. The use of computers could enhance these capabilities. Designers' sensitivity to local conditions should be increased, designs should be standardized, and plans, specifications and building regulations should be performance-based in order to encourage the use of design strategies compatible with local needs.

Management personnel was scarce in the developing countries but their training was time consuming and difficult; local educational centres should be developed, using expatriate instructors. The shortage of manpower in this area could also be eased by the use of computers.

Contractual arrangements and bidding practices should be improved.

Finance posed problems:

> "High interest rates, lack of adequate credit with equipment and materials suppliers, the unavailability of rental equipment, lengthy delays in payments, and the practice of withholding a portion of the payment as a guarantee against poor workmanship are serious issues facing local contractors in most developing countries."[47]

Efforts should, therefore, be made to make it more feasible for contractors to borrow working and investment capital, and to increase their ability to manage financial resources through training programmes and appropriate incentives. They should also be encouraged to merge, and to form associations which could help individual members (especially with finance).

The development of local building materials industries was subject to the availability of manpower, capital, markets and necessary raw materials. Rather than limit such development to those materials in standard use in industrialized countries, innovative consideration should also be given to the use of locally abundant raw materials such as rice straw, bagasse and bamboo. The neglect of the maintenance of constructed facilities was costly, and tended to reduce the life of the facility. Properly organised maintenance could generate employment for unskilled workers. The staging of construction could result in the more effective use of resources and lower costs.

There should be centralized agencies or institutes in the developing countries to encourage, support and perform research into all aspects of construction, and to collect, evaluate and disseminate information to the industry. The construction industry could only develop if demand and supply fluctuations were lessened. This called for comprehensive planning of the resources and products of the industry. It was important for each country to develop programmes for its industry based on its own peculiarities and resources.

5.4.3.4. Training, Employment and Technology

Edmonds (1979)[48] emphasised the place of construction in the economy of every country and its role in development. He noted that construction technologies tended to be more capital-intensive in developing countries whereas unemployment was high and wages low.

> "Whilst standards of efficiency and quality certainly have to be maintained, it is paradoxical in view of the industry's undoubted potential for employment creation that on average the proportion of the population employed in construction is five or six times lower in the least developed countries than in the developed ones."[49]

The procedures used in developing countries affected the efficiency of the local construction industry, limited its growth and affected its choice of technology and hence its level of productive employment. (See 5.4.4.3.2). The nature of the industry, and the difficulties encountered in delineating and defining it, hindered the collection of data on it, and consequently, the planning of its growth. There were far fewer construction firms in the developing countries than in the industrialised ones, and the gulf between the larger and the smaller firms was also larger; there was a dearth of medium-sized contractors. The small indigenous contractor operated under the most difficult conditions characterised by a number of vicious circles; he could only be helped through training schemes organised in an imaginative manner. Small contractors could be organised into cooperatives; a public-owned, large construction firm could also be formed.

> "Whilst large foreign-owned construction companies will, of necessity, have to be used on major projects in many developing countries, this should be viewed as a short-term expedient until such time as the domestic sector can effectively undertake such work."[50]

Training in the field of multi-project programming would enable engineers to plan more effectively the inputs required by the industry to meet its target output or budget, and, at the level of the enterprise, equip the local industry with the ability to develop its potential.

5.4.3.5. On Balance

The paradigms reviewed in 5.4.3.1-4 are also growth-based: the comments made in 5.3.1.4 apply to them. Furthermore,

(a) their consideration of the place of construction in the economies of the developing as compared to the developed countries, and their call for the former to be enabled to move towards the latter are reminiscent of Rostow's approach to development (see 1.4.2), and may be criticised along the same lines. Whereas, despite the difficulties in obtaining reliable information on construction (see 3.6.9) the generic relationships may be correct, it is not sufficient evidence to conclude that a minimum level of national income is necessary to support take-off in construction (Edmonds (5.4.3.4) suggests 300 dollars per capita per annum) or that a particular percentage of construction output to national income is a condition for take-off in the economy, considering the various ways in which an economy might grow (see 2.2.1). Finally, were either or both of the foregoing to be true, there would be little hope for the developing countries to make much progress in the near future, since prospects for their economic growth appear bleak (see Chapter 2) and construction is a particularly difficult sector to develop (see 3.7-9); moreover, growth in construction could aggravate inflation or balance of payments problems (see 3.5);

(b) they are mainly 'balanced growth' strategies (see 2.3.1) calling for effort on several fronts, although the paucity of the required resources in the developing countries makes such an approach impractical;

(c) by presenting proposals without attempting to indicate an order of priorities the paradigms neglect the diffusion and complexity of the construction industry, the low probability for all the measures to have equal successes at the same time and the likelihood that

success or failure in certain parts of the industry would create problems of a different nature in others; (see 3.6.3. and 3.7-9).

(d) some of the specific proposals may also be briefly considered:

(i) planning for construction is more hazardous and can be even more of an academic exercise than national economic planning (see 2.2.1 and 3.6.8). Drewer (1975) suggests that:

> "... in many developing and western market economies it is often assumed that such is the diversity of the outputs that the planning exercise is of little use except in the identification of a loose strategical framework."[51] (See also 3.6.8).

(ii) institutional arrangements in construction are not easily alterable; (see 3.4) nor are public attitudes and values. Hence new contractual procedures and the development and use of local materials are more difficult than the paradigms seem to suggest; (See 3.7-8 and 5.3.2.2).

(iii) to Moavenzadeh's (5.4.3.3) suggestion that computers could be used, it is necessary to point out that not all construction operations can be computerised at the moment, site assembly is one example. Computer techniques in construction are yet to be widely developed, even in the advanced countries. Moreover, in the developing countries, they can only be applied in a small section of the industry (the international and conventional large). (See 4.4.1). Hence, the scope for computers is limited, their applicability depending not only on the skills they can replace, but also their suitability to local conditions. Indiscriminate and hasty use of computer technology in the developing countries would create industrial problems such as unemployment, disparity in the balance of related skills, and labour unrest.

(iv) in supposing that the industry can be rid of all its problems the authors overlooked the fact that several of its problems, such as unstable demand, and casualisation of labour, are

endemic, stemming from its nature (see 3.7); and

(v) finally, the suggestion that governments should accord construction special priority because of its place in the economy and its role in development is overoptimistic. Turin (1978) advised:

> "Let us at least stop assuming things, for instance, that human settlements should be given priority in national planning. Priority above what: work? health? national security? Law and Order?"[52]

(e) with the limited resources at their disposal and the necessity to adopt a cautious approach that would avoid their making too many mistakes at the same time, it is wise that the developing countries concentrate their efforts on a few major aspects of the complex issue of developing construction at any one time. (See 3.8).

5.4.4. Specific Areas

Some paradigms on construction in the developing countries have been concerned with certain specific aspects of the issue.

5.4.4.1. Contractor development

Andrews et al (1972)[53] studied the construction industries of three developing countries: Ethiopia, Kenya and Sri Lanka, and noted that the industries in these countries lacked a sound structural base on which to build major expansion. The industries were characterised by an extreme dichotomy:

> "... at one end, a large number of small and very small indigenous contractors or self-employed artisans, at the other a small number of large and very large private or public contracting organisations."[54]

But construction had a part to play in the process of national development: by providing more employment, by adding to the stock of investment goods, and by economising in the use of imported materials and machinery. This could best be done by encouraging local contractors to increase their capabilities, and by enlarging the capacity of local

materials industries.

Three changes were required: in the way in which demand was put to the industry, in the structure of the industry, and in the type of inputs available. Labour-intensive types of construction should be chosen so that the plentiful unskilled labour could be used, to economise on imported plant and materials. Work should be in smaller packets to enable medium-sized contractors to gain experience on projects that they could handle. Fluctuations in demand should be reduced, so that contractors could plan and train for continuity. Procedures of design, letting contracts, costing and the like should be simplified. These improvements in the nature of demand would effect changes in the structure of the industry but there should be efforts to improve upon the usefulness of the available resources; manpower should be trained for supervisory and management positions; and the financial requirements of the contracting and materials industries should be examined.

It was mainly the responsibility of clients, especially government and the large contractor organisations, to ensure that improvements were made in the efficiency of the construction industry.

5.4.4.2. Foreign Firms

The apparent neglect of the construction industry by economic planners worldover was lamented by Cockburn (197o)[55]. The industry provided a vitally important service to development, but was beset by peculiar problems. There should be continuity of demand for the industry and its specialised trades. Government should make employment in construction more attractive to a higher level of manpower, and should invest in research and ensure that its results were utilised.

Foreign firms had an important role to play to advance local enterprise, skills and management in the developing countries. Consultants influenced the construction process through their design and

specification, and should consider local skills and patterns of relationships with clients in their work. Contracting firms should adopt measures such as:

> "... a training policy for local managers, site agents and operatives; a supporting policy towards local sub-contracting enterprises; the development of continuing local component manufacturing units; an introduction to the public client ... of construction planning, programming and development expertise."[56]

Manufacturers should also invest in local industries, and lend production and management skills.

Foreign firms tended to have short-sighted profit-oriented ad-hoc trade practices but it was time these were modified to achieve an alignment of the commercial interests of these firms with the long-term development goals of the poor nations:

> "Trade ethics will change. Those firms that change with them, help them to change, will build up that confidence in their client countries that cannot but stand them in good stead in future trading years."[57]

Developing countries would, in future, welcome firms which had new ideas of construction to sell, instead of individual buildings.

Neo (1976)[58], in a study of international contracting, observed that it was characterised by firms of the industrialised countries expanding their operations predominantly into developing countries as well as other developed countries. There was immense potential for construction in developing countries, and:

> "... international contractors of industrialised nations should ... meet this challenge."[59]

The improvement in the terms of trade that would result from higher prices for their exports would enable developing countries to embark on industrialisation programmes which would create opportunities for foreign contractors. Although the risks involved in working overseas were high, competition was keen. Overseas construction contributed to the balance of payments of the industrialised countries both directly and indirectly, through the export of plant, equipment and specialised materials, as

well as invisibles such as consultancy and insurance services. It constituted 5 to 8 per cent of the United Kingdom's domestic industry, and 3 to 6 per cent of the French, Dutch and American industries.

The practices of the foreign firms were often harmful to the economy of the host nation. For example,

> "... international contractors tend to work from one contract to the next, having little regard to the local industry of countries, particularly the developing countries, in which they operate."[60]

Neo's study, however, was limited to ways in which the international contractors could reduce their risks and maximise their earnings, and ways in which they did, or could, repatriate these earnings in the face of increasing controls imposed by the developing countries.

Rossow and Moavenzadeh[61] reviewed the nature and behaviour of multi-national construction firms in developing countries and concluded that they were in business for economic rather than social reasons. This attitude was a direct response to market forces, and was unlikely to change except effort was made to induce particular changes in local conditions.

The developing country's government could impose rules and regulations, provide incentives or adjust existing conditions to promote:

> "... the use of joint venturing and subcontracting, use and training of local manpower, and the use and development of local materials and equipment by multi-nationals."[62]

If comprehensive plans for construction were prepared and the international firms ensured of reasonable job continuity they might be inclined to establish permanent local offices, or have greater interest in the local industry.

International bodies, governments of the developed countries, and agencies in these countries,

> "... through their provision of project financing and associated policies and their support, execution and dissemination of relevant information, may also serve

> to positively influence the operations of multi-nationals in the direction of assisting in the development of the indigenous construction industry."[63]

But it was apparent that the local industry needed to be at a certain level of development before multi-nationals could effectively help it to grow further.

5.4.4.3. Technology

5.4.4.3.1. Industrialisation

The United Nations (1974)[64] considered it essential that governments in all countries, and especially the developing countries, adopted policies for the gradual and progressive industrialisation of their construction industries. The process of industrialisation would follow an irreversible trend in this century, and would eventually reach the least developed areas in the world. The generalised and complex nature of construction required that change in this field be gradual, and be in accordance with the peculiar conditions existing in each country.

> "Rejection of industrialisation may lead to further under-development; adoption of extremely advanced techniques has proved in the past to be the reason for tremendous failures."[65]

The essence of the problem was the adoption of the right measures at the right time in the development process. Industrialisation of building, which could broadly mean the application of modern industrial, organisational and production methods, also included that of other sectors of the economy which supplied and supported construction. The nature of the problem called for direct government action in defining measures and enforcing policies. Developing countries needed to endeavour to industrialise their industries:

> "Nothing is more fallacious than believing the improvement of productivity to be unimportant simply because labour is still inexpensive and plentiful in the developing countries. If building activity increased to the level required to satisfy immense needs of housing and community facilities, even carried out under the most advanced techniques it could alone absorb a large proportion of the

> masses of the unemployed. In some developing countries, for example, there are but two construction workers per thousand population, compared to ten per thousand in the developed nations."[66]

It was equally erroneous to equate industrialisation with the adoption of the latest technological achievements, symbolised in construction by complete prefabrication. This was a target which could only be reached through a number of indispensable changes. The economics of building, particularly costs, were vital in determining when each step leading to industrialisation was justified. At present, when labour costs rose above forty per cent of overall building costs industrialisation in building could be said to be lagging.

There were three stages of the industrialisation process: early, intermediate and advanced, and its success depended upon the sequential or simultaneous consolidation of measures such as: the inclusion of building in the national development plan; development of building materials production; institution building; updating of building legislation; standardisation and modular coordination; establishment of research and development institutions; strengthening of education and training facilities; application of rationalisation in building; investment in tools and equipment; and partial prefabrication.

Before any major technological change was attempted:

> "... a strategy and programme for industrialisation should be elaborated on the basis of a careful study and analysis of all factors bearing upon the development of the building industry."[67]

5.4.4.3.2. Appropriate technology

Most of the writers referred to in preceding parts of this chapter mentioned the need for each developing country to develop an appropriate technology. Much research has been undertaken into the development of efficient, cheap and progressive labour-intensive technqiues in construction. Allal et al (1977)[68] quoted a number of these; and observed that in several cases, much increase in labour

productivity could result from improvements in tools and simple equipment, organisational innovations and payment of incentives.

In most developing countries, however, capital-intensive techniques borrowed from advanced countries predominated, although they were often unsuitable and unrealistic. This tendency was reinforced by existing quality standards, design principles, methods of pricing which neglected certain hidden social costs and benefits, governments' fiscal and monetary policies, contracting procedures, the use of foreign consultants and contractors, tied foreign loans, and the tendency of construction firms to mechanise as they grew, thereby losing the experience in labour-intensive techniques. Each of these could be overcome if governments adopted and implemented specific measures.

> "... the governments of developing countries need to take steps to eliminate the present institutional biases in favour of capital-intensive techniques. It is also clear that a great deal of effort will have to go into providing the necessary training at all levels, setting up suitable administrative and managerial systems, and developing improved labour-based tools and equipment."[69]

5.4.4.4. International Cooperation

The Economic Commission for Europe (1976)[70] suggested that progress towards the improvement of the construction industries of the poor countries could best be made through the acceptance of new contracting practices, and the encouragement of joint ventures between qualified exporting firms and local organisations with a potential learning capacity. The Commission realised, however, that the opportunities for international trade in construction were limited by constraints imposed by an adverse balance of payments on the rate and stability of economic growth.

In periods of high and rising unemployment, high rates of inflation and large trade deficits there was pressure for greater restrictions on international trade. Since most developing countries were in such adverse economic circumstances,

> "... the prospects for international trade in construction will be heavily dependent on the success of international cooperative measures, in both trade and monetary policy, in overcoming the imbalances between surplus and deficit countries."[71]

5.4.4.5. Comments

A few brief comments may be made on the paradigms reviewed in 5.4.4.1-4:

(a) the development of local contractors is considered in later parts of this thesis (14.4 and Chapter 15) as the aspect of the problem most likely to lead to overall success, since by improving the efficiency of the executing part of the industry it enables it to cope with its constraints;

(b) foreign firms have a role to play in developing the construction industries of the developing countries but they do not present an easy solution. Measures in this area can only succeed if imaginatively formulated and effectively implemented: they will call for the willingness and cooperation of the foreign companies and the appropriate attitudes in local trainees or partners; (See 15.10).

(c) The adoption of an appropriate technology should be based on an industry-wide long-term strategy (as in 5.4.3.3.1). Current considerations, too often, concentrate on lower levels of the technology continuum (as in 5.4.3.3.2); thus neglecting the need for certain advanced techniques in certain subsectors such as the international and conventional large (see 4.4.1-2) and the need to promote the long-term development of the efficiency and adaptability of the industry (see 3.8); and

(d) comments are made on international economic cooperation in 5.3.1.6.

Generally, apart from references to the need to develop local materials and techniques, paradigms on the development of construction from the approach of its role in socio-economic development have remained

'conventional' and mainly determinist and have concentrated on the formal, modern sector of the industry.

5.5. Conclusion: A General Appraisal

The modern sector of the construction industries of developing countries is usually a carbon-copy of the industry of the former metropolitan power. The industries of the developed countries evolved gradually in direct response to the demands placed upon them as the socio-economic circumstances of the nations changed (see 3.4.). The developing countries are at a very early stage of development, and have socio-cultural environments that are evidently different from those of the advanced nations. The environmental conditions that are necessary to support the implementation of most of the tactics usually proposed are, at best, scarce or undeveloped, if not non-existent in the poor countries. (See also 1.4.5-7).

Like the 'conventional' models of economic development (see 2.2.1-2), most of the recommendations made for the improvement of the construction industry draw mainly from the experience of the advanced countries, hence they neglect the traditional sector. Unlike the models of economic development which worked in some rich countries, the recommendations for the improvement of construction have not always worked even in the developed countries: some of the problems facing the construction industries of developing countries stem from the nature of construction activity itself, and can be found to be plaguing the industries of the more advanced countries (see 3.7). But the recommendations assume that all the constraints acting on the construction industries of the poor nations can be removed.

By taking for granted the resources and conditions necessary for their successful implementation the recommendations tend to be in the nature of "WHAT IS TO BE DONE", rather than "WHAT CAN BE DONE". As the Tanzanian government advised:

> "A poor man does not use money as a weapon ... we have chosen the wrong weapon ... We are trying to overcome our economic weakness by using the weapons of the economically strong - weapons which we, in fact, do not possess."[72]

Quite apart from the scarcity of human and material resources, there are socio-cultural factors in the developing countries which tend to frustrate the successful implementation of the usual recommendations.

The differences in the environmental variables of the developed and developing nations imply that they have different sources of strength and weaknesses. It is necessary that an attempt is made to utilise each nation's peculiar factors of strength while trying to remove some of its weaknesses, as most of the recommendations are meant to do.

Moreover, the proposals are not arranged in an order of priority, nor are the implications of the success or failure of particular measures for others considered. None of the paradigms adopted a time-based approach (see 3.8) which would have indicated how soon or easily certain issues could be resolved and what would or should happen after that, especially how the results of earlier stages could be used in later ones.

There should be a reappraisal of the sense of direction in the light of the realities of the situation in which the developing countries find themselves.

It is important that a model that is realistic, practical and feasible is developed, one that enables the country to marshall all its endowments: human, material, traditional and cultural, as well as any external assistance that might be forthcoming.

The socio-economic characteristics of the developing countries are not going to change in the foreseeable future. The international economic system is even less likely to undergo any major transformations. Resources will be in short supply in the developing countries for some time yet.

The question then is how, with the limited resources at its disposal, the developing country can develop a construction industry to make the best use of present resources and procedures, while inducing and reacting to changes in the industry itself, and in its environment (see 3.8). To quote Murie et al (1976):

> "The complexities of the ... system call for equally sophisticated policy measures to control it. A ... 'strategy' composed of a number of actions, each subject to revision as side effects become apparent may be more realistic than a 'policy' offering once-and-for-all 'solutions'."[73]

5.6. A Synthesis

Although an attempt was made to study all major existing writings on the subject of improving the construction industries of the developing countries, those reviewed in preceding sections of this chapter are not necessarily all that there are, nor are the points crystallised from them necessarily those the authors themselves would consider most important.

For the purpose of this thesis, however, the sample reviewed above is adequate, and the main ideas drawn from them very relevant. To obtain a basis for further discussion, a 'synthesis' is offered, using the issues and solutions most frequently referred to by the writers.

Such a synthesis, like most of the paradigms reviewed, is based on the premise that local construction capacity can, and should be improved through the removal of constraints acting on it, and provision of its vital inputs. The strategy would be:

(1) government should pursue a reasonable rate and stability of economic growth to support construction programmes directly and indirectly;

(2) government should recognise the importance of construction in development and establish a ministry or department to manage it;

(3) tactics for improving the local construction industry should be incorporated in national development plans: not only should demand for construction be reasonably stable to enable the sector to plan

for its growth but also, strategies to increase its resources should be formulated;

(4) the procedures, regulations, codes, bye-laws and contractual arrangements are inappropriate in the environments in which they are employed, and should be reviewed;

(5) the dependence on imported materials should be reduced through research into, production and utilisation of local materials;

(6) personnel should be trained for skilled supervisory and managerial positions;

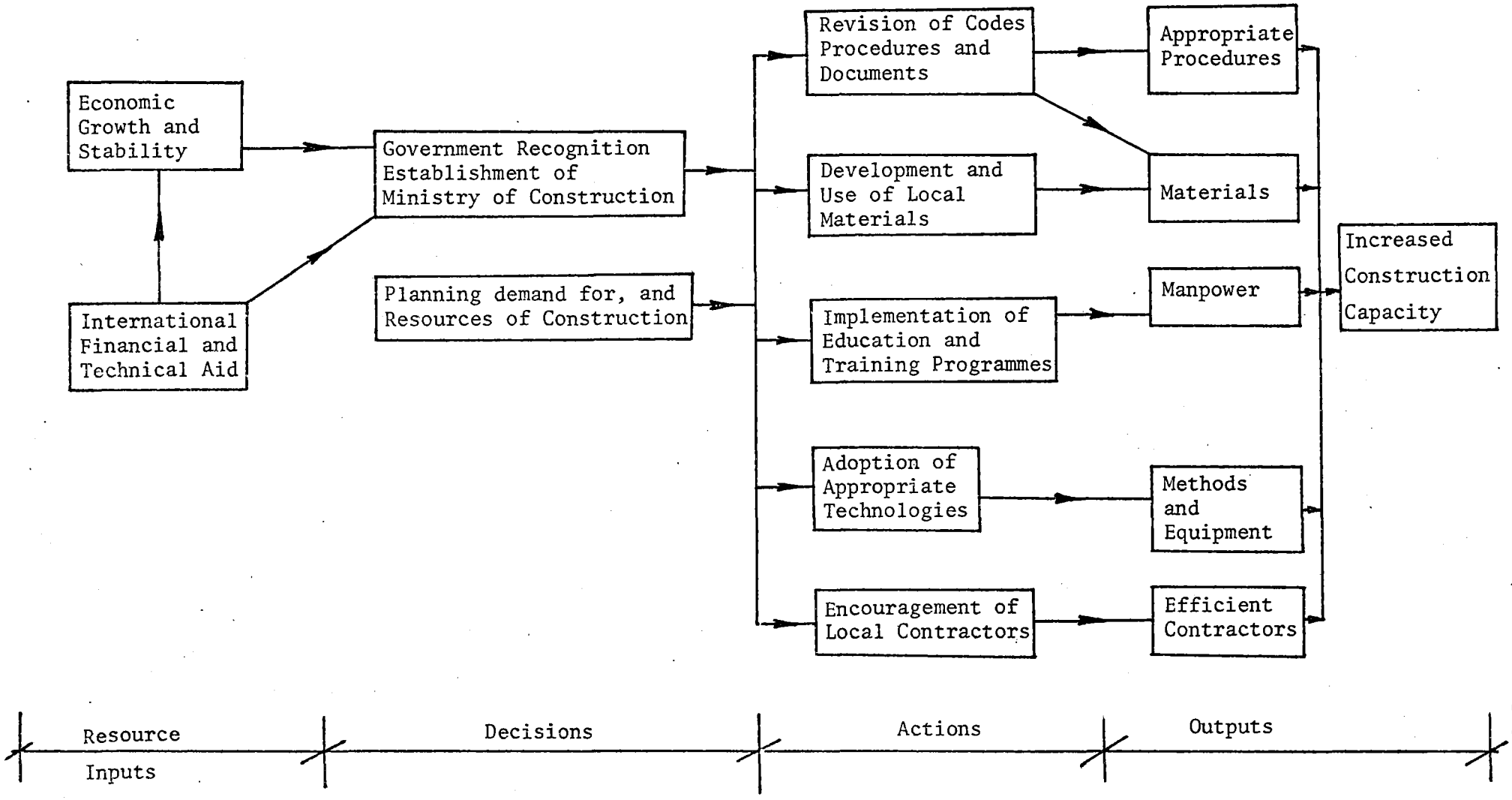
(7) appropriate technologies should be adopted in construction; and

(8) measures to ensure the development of small- and medium-sized indigenous contractors should be formulated and implemented.

Figure 5.1 indicates the relationship between these tactics, and their individual and combined effect.

In the following part of the thesis (Part III) the situation in Ghana is reviewed in the context of the above strategy. The experience of Ghana between 1951 (when it attained self-governing status) and 1979 in the field of trying to enhance construction capacity and/or efficiency will be considered in detail to find out whether, and how any of these measures have been, or can be implemented, to identify reasons for success or failure, to suggest issues that need to be concentrated upon in future, and propose any changes that should be made in existing ideas on the issue,

FIGURE 5.1. Schematic Diagram of the Synthesis of Current Strategies for Developing Construction



5.7. Notes and References

1. See, for example, Beyer, G.H.: Housing and Society, Macmillan, London, 1965. To Beyer, the soundest solution to the housing problem lay in efforts to:
   (1) raise the economic level of the population adequately to enable them to purchase houses themselves, or through government subsidy;
   (2) overcome social class problems;
   (3) stabilise the political situation which hinders comprehensive programming, scares off investment, and spurs spending;
   (4) achieve universal education (p.572).

2. Department of Economic and Social Affairs: Report of the Ad Hoc Group of Experts on Housing and Urban Development, United Nations, New York, 1962.

3. Ibid., p. 27.

4. Ibid., p. 3.

5. Economic Commission for Africa (ECA), Housing in Africa, United Nations, New York, September 1965. See also, Economic Commission for Africa, The Building Materials Industry in Africa, in ECA Economic Bulletin for Africa, Vol. VII, Nos. 1 & 2, UN, New York, 1968, pp. 35-48.

6. Ibid. (Housing in Africa), p. 99.

7. Turin, D.A., Housing in Africa: Some Problems and Major Policy Issues, in Nevitt. A.A. (ed), The Economic Problems of Housing, Macmillan, London, 1967.

8. Ibid., p. 213,

9. Ibid., p. 213.

10. Ibid., p. 318.

11. Abrams, C., Housing in the Modern World, Faber and Faber, London, 1964.

12. Ibid., p. 141.

13. Ibid., p. 252.

14. Ibid., p, 209.

15. Ibid., p. 65.

16. Building Research Establishment (BRE), Third World Urban Housing: Aspirations, Resources, Programmes, Projects, A Report prepared for the Overseas Division of the BRE by Shankland Cox Partnership, BRE, 1977.

17. Ibid., p. 5.

18. Ibid., p. 122.

19. Ibid., p. 140.

20. van Ettinger, J., Snr., Habitat and After, in Koenigsberger, O.H. and Groak, S. (eds), Essays in Memory of Duccio Turin, Pergamon Press, Oxford, 1978, p. 153.

21. See, for example, Department of Economic and Social Affairs, Rural Housing: A Review of World Conditions, United Nations, New York, 1969, p. 1.

22. Terra, J.P., Dubrovnik viewed from Latin America, in Koenigsberger and Groak, op. cit. (ref. 20), p. 159.

23. MacDonald, L., Spontaneous Urban Settlements, in ibid., p. 111.

24. See for example, Department of Economic and Social Affairs, op. cit. (ref. 21), p. 30.

25. Economic Commission for Africa, Human Settlements in Africa: The Role of Housing and Building, United Nations, Addis Ababa, 1976, p. 4.

26. Ibid., p. 4.

27. Ibid., p. 4.

28. Chenery, H.B., Patterns of Industrial Growth, in Rostow, W.W. (ed), The Economics of Take-off into Sustained Growth, Macmillan, London, 1963. See also Cairncross, A.K., Capital Formation in the Take-off, in the same book.

29. Kuznets, S., Capital in the American Economy, Princeton University Press, 1961.

30. Strassman, W.P., The Construction Sector in Economic Development, in The Scottish Journal of Political Economy, November 1970, pp. 390-410.

31. Ibid., p. 395.

32. Chenery, H.B. and Taylor, L., Development Patterns among Countries Over Time, Review of Economics and Statistics, November 1968.

33. Channon, D., The Service Industries: Strategy, Structure and Financial Performance, Macmillan, London, 1978, p. 3.

34. Galenson, W., Economic Development and the Sectoral Expansion of Employment, International Labour Review, June 1963, pp. 505-19.

35. a) Turin, D.A. and O'Brien, T.P., Building Materials Industries: Factors Affecting their Growth in Developing Countries, Building Economics Research Unit (BERU), University College Environmental Research Group (UCERG), London, May 1969.
    b) Turin, D.A., Construction and Development, BERU, UCERG, London, September 1973.
    c) Turin, D.A., The Construction Industry: Its Economic Significance and its Role in Development, Part 1, Text, 2nd Ed., BERU, UCERG, September 1973.
    d) See also, United Nations Industrial Development Organisation (UNIDO), Industrialisation of Developing Countries: Problems and Prospects, Construction Industry, Monograph No. 2, United Nations, New York, 1969. This monograph was based on material provided by Professor Turin.

36. Turin, op. cit. (ref. 27,a), p. 11.

37. Turin, op. cit. (ref. 27, c), p. B31.

38. Turin, op, cit. (ref. 27, b), p. 13.

39. Ibid., p. 15,

40. Turin, op, cit. (ref. 27, c), p. F19.

41. Ibid., p. F19,

42. Drewer, S.P., The Construction Industry in Developing Countries: A Framework for Planning, BERU, London, 1975.

43. Ibid., p. 9.

44. Ganesan, S., The Building Industry in Sri Lanka and Problems of Common Interest to Developing Countries, in Koenigsberger and Groak, op. cit. (ref. 20).

45. Ibid., p. 62.

46. a) Moavenzadeh, F., The Role of the Construction Industry in the Development Process, Public Policy, Vol. XXII, Spring 1974, No. 2, pp. 219-241.

b) Moavenzadeh, F., Construction Industry in Developing Countries, World Development, 1978, vol. 6, No. 1, Pergamon Press, pp. 97-116.

47. Moavenzadeh, op. cit. (ref. 46, b), p. 114.

48. Edmonds, G.A,, The Construction Industry in Developing Countries, International Labour Review, Vol. 118, no. 3, May-June 1979, pp. 355-369.

49. Ibid., p. 356,

50. Ibid., pp. 367-8.

51. Drewer, op. cit., (ref. 42), p. 32.

52. Turin, D.A., It Had to be Said, in Koenigsberger and Groak, op. cit. (ref. 20), p. 143.

53. Andrews, J., Hatchett, M., Hillebrandt, P., Jaafar, A.J., Kaplinsky, S., and Oorthuys, H., Construction and Development: A Framework for Research and Action, BERU, London, 1972.

54. Ibid., p. 3.

55. Cockburn, C., Construction in Overseas Development: A Search for Appropriate Aid and Trade Measures for the 1970's, Overseas Development Institute Limited, London, 1970.

56. Ibid., p. 29,

57. Ibid., p. 31.

58. Neo, R.B., International Construction Contracting, Ph.D. Thesis at Heriot-Watt University, Gower Press, Epping, 1976.

59. Ibid., p. 56.

60. Ibid., p. 84.

61. Rossow, J.A,K. and Moavenzadeh, F., Multi-National Firms in Construction, unpublished mimeograph, Massachusetts Institute of Technology (Department of Civil Engineering).

62. Ibid., p. 14.

63. Ibid., p. 14,

64. Department of Economic and Social Affairs, Guidelines for Government Policies and Measures for the Gradual Industrialisation of Building, United Nations, New York, 1974. See also reference 35, d.

65. Ibid., p. iii.

66. Ibid., p, 5.,

67. Ibid., p. 40.

68. Allal, M., Edmonds, G.A. and Hussain, M.I., Development and Promotion of Appropriate Road Construction Technology, International Labour Review, Vol. 116, No. 2, September-October 1977, pp. 183-195.

69. Ibid., p. 195.

70. Economic Commission for Europe, Long-term Prospects and Policies in the Construction Sector, United Nations, New York, 1976.

71. Ibid., p. 44.

72. Government of Tanzania, The Arusha Declaration and Tanganyika African National Union's Policy on Socialism and Self Reliance, Government Printer, Dar es Salaam, 1967, p. 5.

73. Murie, A., Niner, P, and Watson, C., Housing Policy and the Housing System, George Allen and Unwin, London, 1976, p. 253.

PART THREE

GHANA AS A CASE STUDY

CHAPTER 6

CONSTRUCTION AND THE ECONOMY

"Many countries have experienced that shortage of buildings and of construction capacity for comparatively short periods have had a rather strong negative influence on economic and social development."
- Economic Commission for Europe, Long-term Prospects and Policies in the Construction Sector, United Nations, New York, 1976, p. 1.

"When considering alternatives for increasing the flow of funds for new houses the economic potential of the country should be kept in mind ... the high import content of construction constitutes a severe constraint on the economy's ability to cater adequately to the housing needs."
- Government of Ghana, One Year Development Plan July 1970 - June 1971, Accra, September 1970, pp. 142 and 143.

6.1. Introduction

Most writers on construction in developing countries refer to the important place of the industry in each nation's economy and urge the expansion of construction capacity to support socio-economic development and the expansion of the economy to aid the development of the industry. (See 5.3.1.1, 5.4.1, 5.4.3.1 and tactic (i) in the 'Synthesis' 5.6). Furthermore, programmes proposed for improving the industry in these countries usually adopt a growth-based 'balanced' approach which can only be sustained by a buoyant economy. (See 5.3.1.4 and 5.4.3.5).

After establishing the role of the construction industry in Ghana's economy, this chapter considers the characteristics, history and prospects of the economy, thereby showing how and why 'conventional' approaches to development (see 2.2.1-2) have not worked in Ghana. The bleak prospects for the economy will demonstrate that the country cannot support increasing levels of construction activity, nor can it finance growth-based, balanced approaches to the solution of the industry's problems.

The chapter also identifies some of the factors which determine the level of construction activity (apart from growth of the economy), and shows, therefore, that the level of output alone cannot be an adequate assessment of construction capacity or of the success of measures aimed at improving the industry. Specifically, a study of the pattern of government's expenditure over the years indicates that it is naive to expect construction to be given priority over other sectors. Since the industry relies on imported inputs, foreign exchange is an important constraint which will not necessarily be relieved, and may be worsened, by economic growth.

The currency unit used in this part of the thesis (Part III) is the cedi (¢), the weighted average exchange rate of which was ¢1.0285 = US$1.00 in 1965-66, ¢0.8263 = US$1.00 in 1967, ¢1.0204 = US$1.00 in 1968-71, ¢1.3295 = US$1.00 in 1972, ¢1.1753 = US$1.00 in 1973, and ¢1.1538 = US$1.00 in 1974. At various times these official rates have overvalued the cedi. (See 8.2.4.).

6.2. Construction Output and Economic Growth

A comparison of gross output in construction in Ghana with GDP (see table 6.1) shows that, over the years, the level of activity in

TABLE 6.1. Gross Output from Construction Activity and Gross Domestic Product (1965-74) (Constant 1968 Prices)

(¢ million)

Year	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Construction Output	226	177	147	133	138	160	197	142	161	208
GDP	1717	1644	1694	1700	1802	1929	2029	1978	2088	2196
Construction Output as a Percentage of GDP	13	11	9	8	8	8	10	7	8	9

Source: Central Bureau of Statistics, Economic Survey 1972-74.

construction has fluctuated roughly in line with the economy.

The figures (table 6.1) indicate, too, that the share of construction was higher during years in which the economy grew markedly (1965, 1971 and 1974). This would seem to authenticate the advice that governments should endeavour to pursue economic growth in order to support stable construction programmes, as well as implement policies for improving the efficiency of the industry. (See 6.1).

A study of the performance of Ghana's economy reveals the fact that, despite persistent government effort attended by clear intentions and elaborate planning, the economy has failed to make any major headway, and the outlook for the future looks even bleaker and more desperate. Thus, improvements in, and expansion of construction should not be conditioned by growth of the economy, if the industry is to make any meaningful contribution to socio-economic development.

6.3. Basic Characteristics of the Economy[1]

Ghana's economy is mainly agricultural; over 40 per cent of the GDP is derived from this activity which employs about 60 per cent of the working population. Some 70 per cent of the country's export earnings are also due to agricultural goods, especially cocoa, which alone accounts for 60 per cent of all export earnings.

Farming is mainly for subsistence, and uses traditional methods. More than half a century of well-organised agricultural extension services has failed to result in any major changes in farming practices: most peasant farmers cannot obtain credit facilities - despite the establishment of special banks[2] - and modern inputs. In recent years commercial farming of rice and other grains, and industrial crops like cotton and oil palm has become significant, especially in the savanna plains in the north of the country.

Manufacturing industry is dominated by modern enterprises, most of them state-owned. The sector depends upon imported raw or intermediate

materials and equipment, and the level of capacity utilisation is closely related to the balance of payments.

Even agricultural production relies on imported inputs like insecticides, fertilizer, and high-yield seeds. It has become clear that

> "The single, most important constraint on the growth of the economy is the availability of foreign exchange ... The structure of the economy is such that growth in output tends to require a corresponding and sustainable increase in related imports. Thus, it is estimated that the realisation of a 5.5 per cent annual growth in output over the Plan period needs an increase in imports of more than 6 per cent per annum."[3]

The level of investment has been falling - from a peak of 22 per cent of GDP in 1965 to 6 per cent in 1972. Technical progress has also been slow. The economy has, thus, been unable to create new employment opportunities, in the face of a rising population - a growth rate of 2.7 per cent per annum - and urban unemployment in 1975 was estimated to be between 400,000 and 500,000 or about 10 to 13 per cent of the labour force. At the same time, labour shortages were experienced in the agricultural sector during periods such as harvest time. Despite increases in skilled personnel after independence, continued shortage of managerial and supervisory personnel has resulted in the inefficient use of scarce resources.

A sound infrastructural base was developed for the Ghanaian economy by the middle of the 1960's, but balance of payments difficulties did not permit its optimum use, and the capital stock has depreciated considerably.

Government revenue is heavily dependent on import and export duties, and, since the volume of trade fluctuates, is unpredictable. (See also 1.4.3).

> "Revenue from cocoa alone forms about 26 per cent of total tax revenue, so that the tendency for short booms in the industry to be followed by longer periods of stagnation has a destabilising effect on revenue."[4]

Furthermore, tax collection is inefficient. Increasing current expenditure, lack of budgetary control, losses by state corporations and

stagnant revenues have meant that since the mid-1950's the economy has been characterised by persistent and growing government budget deficits.

6.4. Political and Economical History

6.4.1. Periods

The growth of Ghana's economy since it attained self-governing status in 1951 can be discussed under four periods in which the constraints on the economy, and hence policies, were distinctly different. These are: between 1951 and 1966 (the First Republic); the period under the military government of the National Liberation Council, 1966-69; the duration of the Second Republic 1969-72; and the period after 1972.

6.4.2. The First Republic

The policy of the government of the First Republic was to shift the structural base of the economy from agriculture to industrialisation[5]. This was not only in accordance with the dominant theories of development at the time[6], but also seemed sensible in view of the difficulty that the country's reliance on primary exports, whose prices fluctuated wildly, and imported goods which, it was hoped, could be made locally, was creating for the economy. The government adopted an interventionist policy aimed at the predominance of the public sector in the key sectors of the economy. This had some initial successes but problems soon arose:

> "... production, which grew rapidly between 1957 and 1960, slowed down in 1961-62 and stagnated in the following three years."[7]

The economic decline was precipitated by the fall in export earnings, caused, in turn, by the fall in the export price of cocoa and the fact that most of the industries relied on imported inputs. By 1966, the economy

> "... was characterised by severe shortages of foreign exchange, a large external debt, declining domestic

savings, substantial unutilised industrial capacity, growing unemployment and a stagnant agricultural sector."[8]

6.4.2.1. Capitalisation

But the country had succeeded in establishing a fairly high level of capitalisation. By the mid-1960's

> "It was generally believed that Ghana's capital stock per capita was among the highest in the under-developed world."[9]

Investment in construction had provided the country with

> "... an infrastructure considered advanced even by the standards of some developed countries."[10]

It was thus believed that if resources were switched to the directly productive sectors, and the capital capacity fully utilised, the economy could grow rapidly. The country had reached the theoretical "take-off" point (see 1.4.2). But reality differed from theory.

> "Due to balance of payments related difficulties ... the expected take-off was stultified, and the level of new investment declined to a point where it was hardly sufficient to keep the capital stock intact."[11]

Thus experience in Ghana showed that 'conventional' models of development were unsuitable to the conditions in the country.

6.4.2.2. "What Went Wrong?"

Several reasons have been proposed as to why Ghana's economy did not make any remarkable strides after the mid-1960's.

Some questioned the industrialisation policy itself; Lewis[12] had warned that rapid industrialisation would take labour away from agriculture without increasing productivity, leading to food shortages and balance of payments crises. In the event, the food issue was attended to by the government's creation of state farms in several areas but the balance of payments problem proved critical. This was recognised by some to be the result of lack of effective linkages between manufacturing industry and agriculture[13].

Others attacked the inefficiency of a state-dominated economy, maladministration and political patronage in making appointments to high positions in the enterprises[14]. Finally, some economists thought that resources had been misallocated:

> "... a large share of capital expenditure in 1960-65 was devoted to projects of doubtful economic value and to overheads which in the short-run could yield only rather low economic returns ... for example, prestige projects such as the Accra-Tema motorway (£4 million), the conference buildings for the Organisation for African Unity meeting ... the construction of unused cocoa silos (£8.5 m), on public buildings (£40 m), military installations and equipment (£15 m). It is estimated that these items accounted for about 30 per cent of the total government capital expenditure of £300 m from 1960-65. In addition some £37 m was spent on capital expenditure on educational facilities which although socially desirable could produce only long-run economic returns."[15]

While not attempting to whitewash an economic programme which was not without error, not the least of which was the haste with which such a scale of investment was undertaken, the priority accorded to politics over economics in the siting of projects and the inadequacy of qualified personnel to manage the enterprises, it must be pointed out that it succeeded in creating for Ghana a base for economic expansion. Some of the items that were considered luxurious or prestigious at the time have come to be recognised as prudent economic, though rather long-term investments[16].

6.4.2.3. Education

The education programme in the period included the introduction of compulsory, free universal education, a substantially expanded secondary school system with free tuition, and the establishment of two new universities and the extension and upgrading of the existing university college. The government's 'Africanisation' policy was carried out with some success:

> "In 1953 there were 1350 expatriates and 809 indigenous civil servants: by 1958, 289 expatriates and 1984 Ghanaians; and by 1962, only 39 expatriates and 3294 Ghanaians."[17]

This is not to say, however, that the country could meet all its requirements of skilled personnel. It was remarked, as late as 1975, that:

> "At the managerial and supervisory level, shortage of personnel has been an important factor in the inefficient utilisation of scarce capital equipment. Although the level of management skills among Ghanaians increased during the 1960s there is still a shortage of specialised skills."[18]

In short, although the economy reached the brink of the proverbial 'take-off' in terms of investments in human and material capital and in infrastructure, it failed to show any substantial growth.

> "According to official information, some part of private manufacturing industry, and possibly also private construction industry, were forced to reduce production because of shortages of raw materials and spare parts. Private investment was also adversely affected by a worsening of business expectations due partly to political and economic uncertainty and partly to the general stagnation in aggregate demand."[19]

Shortages of consumer goods and increasing prices engendered economic and political instability which culminated in the overthrow of the government in 1966.

6.4.3. The National Liberation Council

Ghana has not been without its share of the effects of the dichotomy between the world's major ideologies. The military takeover of February, 1966, sought to reverse the socialist leanings, policies and programmes of the previous regime. Aid agreements signed with Eastern countries were abrogated, personnel from such nations were expelled, and even on-going projects suspended. The latter included a large brick and tile factory and a unit for producing components for industrialised buildings.

Massive cuts in public expenditure and strict import controls were imposed as a means of stabilising the economy and reducing the balance of payments deficits. These led to high unemployment and a depression in

economic activity (see table 6.1). However,

> "Although one of the objectives of the stabilisation programme had been the restoration of equilibrium in the balance of payments, the structural weaknesses and imbalances in the economy made this unattainable. Persistent trade deficits in the face of high external indebtedness led to a 30 per cent devaluation of the cedi in 1967."[20]

Cutting public expenditure reduced, but did not eliminate, the budget deficit. In 1969, the deficit of ¢95.5 million recorded was referred to as "the lowest since 1962 (with the exception of 1967)"[21] .

Improvements in export earnings in 1968 and 1969 led to the cessation of the stabilisation period and the introduction of a Two-Year Plan (1968)[22] aiming at:

> "... stimulating growth by reducing the constraints on the utilisation of available resources and thus reduce unemployment levels."[23]

Import restrictions on essential raw materials and spares were relaxed in an effort to accelerate production. The same basic principles were adopted by the second civilian government of 1969.

6.4.4. The Second Republic

The elected government, which assumed office in October, 1969, followed import liberalisation and expansionary economic policies. These seemed possible in the light of the favourable developments in the export price of cocoa, and expectations and/or promises of foreign aid. The government was

> "... committed to the task of accelerating the pace of the nation's economic and social development and to ensuring that the fruits of development accrue in an equitable fashion to all sections of the population in all regions of the nation."[24]

It initiated an extensive programme to provide basic needs, especially water, health facilities and roads, to the rural population.

The sudden deterioration in the price of cocoa on the world market in 1971 dealt a crippling blow to the government's policies[25]. (See also 1.4.3).

> "The current account for the year [1971] recorded a deficit of ¢202.4 million which was financed by the use of reserves and a build up of arrears of current payments ... On December 27, 1971, the cedi was devalued ... by 44 per cent in terms of the dollar, the effects of which, among other things, led to the change in government on January 13, 1972."[26]

6.4.5. After 1972

The second military government (the National Redemption Council later renamed the Supreme Military Council) revalued the cedi, reducing the effective rate of devaluation to 26 per cent[27]. It reintroduced strict import control, suspended the payment of trade debts, and unilaterally abrogated certain specific loan agreements. The last measure led to the suspension of export guarantees to Ghana by some Western governments, the scaring off of private foreign investment and the abandonment of any intended aid programmes. The government responded by adopting the policy of 'self reliance' which

> "... requires that we make conscious effort to change positively our attitudes and tastes, reduce our heavy dependence on the central government, revitalise local and regional initiative ..."[28]

On the part of government, the exercise involved attempting to

> "... cut our coat according to our cloth and, should any aid come, this becomes a bonus to the economy."[29]

The policy saw practical implementation in the "Operation Feed Yourself' Programme which, under favourable weather conditions and supported by the euphoria and public enthusiasm that marked the first few years of the military regime, raised the volume of agriculture production. The GDP showed real growth in 1973 and 1974 (see table 6.1).

In terms of the balance of payments,

> "For the first time since 1958, the current account showed a surplus amounting to ¢143.3 million (in 1972) ... and ¢146.9 million in 1973."[30]

But this was not to last: massive increases in the prices of imports, especially oil (but more so a result of the world-wide recession) and the collapse of the import control system brought about a sharp worsening of

the balance of payments in 1974 and succeeding years. Moreover, internally, unplanned expenditures and inability to collect revenue created large budget deficits, and net borrowing by government from the banking system to finance these deficits rose from ¢17 million in 1973 to ¢781 million in 1977[31].

Furthermore, adverse weather conditions reduced the volume of food produced, making it necessary for the country to import food items. The crop failure, coupled with smuggling, cut the volume of cocoa exports dramatically, and, for the first time, Ghana lost its position as the world's leading producer of cocoa[32].

By 1978, government had to admit that:

> "... at present, the economy is in an extremely critical condition. Inflation as measured by changes in the Consumer Price Index has rapidly risen from less than 10 per cent per annum in the early years of this decade to a current rate of over 100 per cent per annum for the past financial year. The tempo of economic activity as measured by the Real Gross Domestic Product has been declining over the period since 1974. The external accounts are grossly out of balance, with the best estimates showing that reserves are at a very low level."[33]

But government was determined to take appropriate measures. The cedi was devalued from ¢1.15 to the U.S. dollar to ¢2.75 in August, 1978[34]. In the atmosphere of high inflation,

> "There was no positive advantage in saving; indeed since the value of money was declining by 10 per cent each month it was more lucrative to be a user of funds than to be a saver ... at the going interest rates."[35]

Monetary policies introduced at the time included measures which resulted in the banks charging a rate of 18½ per cent on loans.

Control of the money supply had been lax: it became necessary, in March, 1979, to demonetise the currency at a rate of exchange of ¢0.70 to each cedi in circulation for sums less than ¢5,000, and ¢0.50 to each cedi for amounts over ¢5,000. Deposits in the banks were not affected by the exercise.

Also during this period, the accountability of public officers fell considerably, most persons used state property and resources for their

personal comfort, and corruption was rife. The high rate of inflation was accompanied by acute shortages of basic consumer goods, subsidised and rationed by government but sold at exhorbitant prices unofficially.

A section of the military staged an uprising against the government in June, 1979, forming the Armed Forces Revolutionary Council which, in a "house-cleaning" exercise, sought to rescue the image of the forces from the depths to which it had sunk. It was an exercise which lasted only a few months, but witnessed considerable social upheaval (revival?) with summary trials and sharp, severe punishment, including some executions, of "economic saboteurs" and other "corrupt persons". Within this period elections were held for a return to civil government.

6.4.6. Future Prospects

The government of the Third Republic assumed office on 24th September, 1979, and took over an economy in a very hopeless condition. The country was said to be bankrupt[36]. Figures released by the Bank of Ghana show that the rate of inflation for the 12 months before September, 1979 was 68 per cent, compared to 77.4 per cent for the same period in 1978, that the money supply rose by 23 per cent in the period as against 66.4 for the same period in 1978, and that arrears of external payments was ¢1,184.82 million at the end of September 1979[37].

Any observation that the situation is improving in view of the falling rates of inflation and the money supply, and expression of optimism, are dampened by the fact that the accumulation of short-term payment arrears had:

> "... more than anything else undermined foreign confidence in the country's economy ... Ghana [was] being refused further credit by foreign exporters and bankers ..."[38]

Another ominous sign is the effect that further increases in oil prices will have on the country's economy. A Minister recently warned that if its suppliers raised prices to $35 per barrel as some oil producing

countries had indicated, Ghana would have to pay $460 million, or approximately £1,000 million for its oil. This meant, in effect, that

> "The foreign exchange earned by cocoa exports would be totally consumed by the oil imports bill."[39]

6.4.7. Depreciation

Not only has the economy been unable to grow, hence losing the momentum generated by the post-independence programme, but also, with the continued neglect of the capital stock and over-emphasis on new projects, as well as, shortage of foreign exchange needed to import spare parts and replacement machinery, the country's stock of infrastructure and production units have deteriorated considerably. Under the current development plan,

> "... it is estimated that no less than 6 per cent of the GDP should be set aside for replacement, especially for the rehabilitation and maintenance of the transport infrastructure."[40]

The economy is faced with the burdens of expanding, at least, to keep pace with a rising population, creating employment opportunities for an increasing number of persons, and also attending to the repair, maintenance or replacement of obsolete or delapidated machinery and infrastructural facilities.

6.5. Economic Growth and the Level of Construction Output

With the bleak economic prospects that appear to be in store for Ghana it becomes unrealistic to presuppose or suggest stable or adequate economic growth to support the development of the local industry. It is, however, important to note that economic expansion is not the only determinant of the level of construction activity. The very nature of construction gives rise to a number of parameters.

The industry cannot produce and stock its goods in anticipation of demand (see 3.6.4): its output is only measured in terms of fulfilled present demand, which in turn is conditioned by a number of factors.

These are now considered.

6.5.1. Level of Output

Experience in Ghana, as in many other countries, has shown that the level of construction activity in any particular year, is determined by factors such as:

(a) the volume of demand for construction;

(b) the availability of key constructional inputs;

(c) the capacity of the industry; and

(d) weather conditions and other uncertain natural occurrences.

These factors are, themselves, interrelated: the volume of demand and availability of inputs may affect, for better or worse, the capacity of the industry; natural occurrences may increase or reduce the volume of demand, and so may the ability of the industry to execute past or present orders (ie efficiency), and so on, and so forth.

6.5.2. Volume of Demand

The way in which the level of demand for construction affects construction output in Ghana can be understood by studying the behaviour of the public sector client, especially central government. Figures of gross output (see table 6.1) show that the level of activity in construction went down sharply in 1966, continued to decline in the 'stabilisation and consolidation' period until 1968, and then started to rise again, only for the upward trend to be arrested in 1972.

1966 and 1972 were years in which the military seized power, and suspended or terminated construction projects as a means of reducing public expenditure. For example, government declared in 1972 that:

> "On capital expenditure the objective is to continue to halt the construction of new government offices ... and living accommodation ... The construction of big hospitals has been suspended ..."[41]

The reduction in public sector orders affected the level of construction

activity in view of the dominance of government among the industry's clients (Table 6.2).

TABLE 6.2. Gross Output from Construction versus Government's Development Expenditure (1969-74) (Current Prices)

	1969	1970	1971	1972	1973	1974
Construction Output (¢10^6)	149.2	179.1	226.6	186.5	239.5	403.9
Central Government Development Expenditure (¢10^6)	65.3	84.0	108.4	103.8	95.8	169.3
Government Development Expenditure as a Percentage of Construction Construction Output	44	47	48	56	40	42

Sources: Economic Survey 1972-74 and 5-Year Development Plan 1975-80, Part I.

In addition to its influence as the major client of the industry, the government's economic and other policies affect the level of demand in the private sector (see 3.6.1.2). But this behaviour is unlikely to change, since government is preoccupied with ensuring general economic growth and stability, and does not, and is not likely to in future, pause to consider the effect that measures it considers appropriate for the whole economy will have on individual sectors.

For example, in 1979, in the face of galloping inflation and huge budgetary deficits, government abruptly suspended almost all public projects, introduced a credit squeeze and raised interest rates. When the industry (particularly the Contractors Association) protested, especially against the first measure, it was told that such an exercise was necessary to inject "sanity" into the economy[42].

Expenditure in construction is relatively easy to cut since the industry's products are not always seen to be directly productive. When the going gets tough, short-run objectives become prevalent, and economic and political goals are kept free of others that may be socially

desirable. Thus it is not likely that government will give expenditure in construction priority over that in other sectors. (See also 5.4.3.5(d)(v)).

Furthermore, in periods of economic difficulty, it would be naive to expect government to support stable construction programmes. And such periods are more likely in Ghana's foreseeable future. It may be argued that fluctuations in demand are advantageous to the industry in that they induce innovation[43]. Changes in the level of demand, however, pose difficulties to individual (especially the small) firms[44]. However, in Ghana such fluctuations will continue to occur, often suddenly and drastically, and it behoves the industry to develop the flexibility to enable it to survive such vicissitudes[45].

6.5.3. Input Availability

Regardless of the rate of economic growth and/or the level of demand, the construction industry can only attain such outputs as the availability of the key resources it requires for its operations allow. The industry needs materials, plant and equipment, finance, skilled personnel and the professional and managerial knowledge to marshal and utilise these resources. Growth of the economy does not imply, and may not necessarily result in increases in the volume of these vital inputs: each requires conscious policies and effort to expand its availability, and not all of them may attract government's attention at any one time.

Of special importance are the items that need to be imported. The country has nearly achieved the complete indigenisation of qualified construction personnel and of contracting and consulting firms but all its plant and equipment, and most of its materials and components, are imported. As shown in table 6.3, gross domestic product in construction is seldom higher than 60 per cent of gross output, although the figures indicate that it showed an upward trend in 1972-74 (see table 6.3).

Unless any economic growth is accompanied by an absolute increase

TABLE 6.3. Gross Output versus Gross Domestic Product in Construction (1965-74) (Constant 1968 Prices)

(£ million)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Gross Output in Construction	226	177	147	133	138	160	197	142	161	208
Gross Domestic Product in Construction	100	84	81	73	73	89	111	85	100	130
GDP in Construction as a Percentage of Gross Output in Construction	44	47	55	55	52	56	56	60	62	63

Source: Economic Survey 1972-1974.

in the amount available to import construction items, which implies increases in export earnings or in borrowing from external sources, or reduction in consumption of other imported items, the industry's output cannot increase in the short run. Strict import controls are partly responsible for the lower levels of construction activity in 1966 to 1969, and 1972 to 1973, and high volumes of imports supported the high output levels of 1965, 1969 to 1971, and 1973 to 1974. (See table 6.4).

TABLE 6.4. Imports of Materials for Construction versus Gross Output in Construction (1965-74) (Current Prices)

£ million

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Imports of Materials for Construction	49	40	30	27	37	41	55	37	53	105
Gross Output in Construction	172	152	134	133	149	179	227	187	231	404

Source: Economic Survey 1972-74.

The reduction of this reliance on imported materials has been an objective of government, and effort has been expended in its connection

but it is, at best, a long-term solution (see Chapter 10). The current plan document expected that:

> "... the construction sector will obtain increasing proportions of input requirements from domestic sources. This optimism is based on the expected increasing domestic production of such key inputs for this sector like iron rods, cement, bricks and tiles, angles and shapes and ceramic products."[46]

As will be shown in a later part of this chapter (see also Chapter 10), this optimism was ill-advised. The industries producing the very items mentioned in the above quotation need to import vital plant and raw materials. In the event, these were not forthcoming, and the factories operate under their installed capacities.

In the short and medium term, the availability of foreign exchange should be considered a major constraint on the expansion of the capacity of the construction industry of Ghana whether or not the local economy grows, and especially if it grows. (See also 3.8).

6.5.4. Capacity

The capacity of the industry is mentioned here on a general level only: its total output in money terms or the extent to which it can meet existing demand. In Ghana, although the economy has not shown any consistent growth over the years, a study of government records shows that the construction industry has not always been able to execute all the projects initiated: and this has meant both the delayed completion of some projects and non-commencement of others.

In 1965, a report on the first year of the 7-Year Plan stated:

> "In this financial year 1965 we must catch up with our construction and production time-tables for all major enterprises and the educational programme."[47]

Again, in 1974, it was revealed that:

> "... low constructional capacity has led to another situation where projects have remained in the Estimates for a long time without being implemented."[48]

Similar observations were made in 1978.

This implies one or more of a number of conclusions:

(a) that the local industry is not big enough to execute even the small volumes of demand put to it, and hence, despite economic growth, demand for construction should be reduced;

(b) the local industry, though quite capable of fulfilling the requirements made of it, cannot obtain the necessary inputs; and

(c) the industry is capable and equipped to meet existing demand, but is constrained by procedures involved in the construction process and other government policies.

In Ghana, each of the three conclusions has been true at various times: (a) during the boom years of the period preceding and succeeding independence (see 6.4.2), (b) during the consolidation and stabilisation period, 1966-68 (see 6.4.3), and after 1975 (see 6.4.5) and (c) in 1974-75 (see 6.4.5). In discussions of the level of demand, therefore, emphasis should not be put only on the ability of the economy to finance additional output, but the capacity of the industry should also be considered.

6.5.5. Natural Phenomena

Natural occurrences such as adverse weather conditions, hurricanes or earthquakes may affect the level of construction output. Among these, the weather is the most important.

Ghana has two seasons: the dry season between November and April, and the rainy season in other months. Construction activity goes on during the whole of a normal year. In some years, heavy, prolonged rainfall may interrupt this schedule. This happened in 1968 and accounts, in part, for the very low level of construction output for the year (see table 6.3). The weather, therefore, has come to be recognised as a major determinant of the level of construction output. For example, it was reported that during 1969,

> "The rise in ... building activity was greatly aided by the sharp increase in local production of cement, ... the increased imports of building materials and the favourable weather conditions during the year."[49]

6.5.6. Formulation and Assessment of Policies

With output in construction depending on so many factors other than economic growth it is inappropriate to base the formulation of policies for developing the industry solely on economic growth. Similarly, it is incorrect to use changes in output as the measure of the success or failure of specific measures aimed at improving the industry. The assessment of such programmes, therefore, cannot be on the basis of gross output only, but rather the extent to which the specifically stated objectives of any measures are met.

This is the approach adopted throughout this part of the thesis (Part III).

6.6. Conclusion

Construction output constituted an average of 9 per cent of GDP in Ghana over the period 1965-74. Periods of economic growth were marked by high levels of construction output but the country's economy has certain basic weaknesses, has failed to grow despite planning and much effort, and its future prospects are minimal. Hence Ghana cannot implement any growth-based models for improving the construction industry. Some of the factors which determine the level of construction output include: volume of demand, which depends upon government's expenditure; availability of inputs, much of which are imported; the capacity of the industry; and natural phenomena. Hence economic growth alone will not lead to increased output. As a result, in order to formulate or appraise policies and measures for construction , it is not possible or correct to use the level of output alone as the yardstick of success or failure.

Thus programmes for improving Ghana's construction industry (and

those of countries with poor economic prospects) need to be less demanding of economic resources and shaped to promote efficiency, without necessarily increasing output or even in the face of decreasing output, through more intensive use of existing resources and institutions, and ultimately to engender the development of a fitter and more adaptable industry.

6.7. Notes and References

1. Based on Government of Ghana, Five-Year Development Plan 1975/76-1979/80, Part 1, Accra, 1977, pp. 1-14. For a detailed account of the nature of Ghana's economy see, for example, Birmingham, W., et al (eds), The Economy of Ghana, George Allen and Unwin, London, 1966.

2. Such as the Agriculture Development Bank and the various Rural Banks.

3. Government of Ghana, op. cit. (ref. 1), p. 2. See also, Leith, J.C., Foreign Trade Regimes and Economic Development: Ghana, Columbia University Press, New York, 1974.

4.. Government of Ghana, op. cit. (ref. 1), p. 4.

5. Reliance on primary production was considered by the then President to be nothing less than economic bondage to the former colonial powers - neo-colonialism.

   See, for example, Krassowski, A., Development and the Debt Trap, Economic Planning and External Borrowing in Ghana, Croom Helm in association with Overseas Development Institute, London, 1974.

6. See Chapter 2 of this thesis. The government's economic advisers included, at various times, Sir W.A. Lewis and Professor N. Kaldor.

7. Eshag, E. and Richards, P.J., A Comparison of Economic Developments in Ghana and the Ivory Coast since 1960, Oxford Institute of Economics and Statistics, Bulletin, Vol. 29, No. 4, November 1967, Basil Blackwell, Oxford, p. 365.

8. Government of Ghana, One Year Development Plan July 1970 - June 1971, Accra, 1970, p. v (Foreword).

9. Government of Ghana, op. cit. (ref. 1), p. 4.

10. Ibid,, p. 4.

12. Lewis, W.A., Report on Industrialisation and the Gold Coast, Government Printer, Accra, 1954.

13. Government of Ghana, op. cit. (ref, 1), p. 3.

14. Jones, T., Ghana's First Republic 1960-66, Methuen, London, 1976, p. 150. "The first state enterprises were set up in 1951, and the process was speeded up in 1961 and 1962. Their contribution to Ghana's economic development was negligible ... they not only cost ... substantial sums to set up, but also increasingly heavy supplementary expenditure to make up for deficits incurred during their operation."

   The President himself, in his Sessional Address to the National Assembly in January, 1965, had occasion to point out that: "... our state enterprises ... were not set up to lose money ... they have a duty to operate on a profitable basis and thereby earn sufficient returns on capital invested by government."

15. Eshag, E. and Richards, P.J., op. cit. (ref. 7), p. 367.

16. The Accra-Tema motorway stands out as the only one amongst Ghana's highways with a durable surface. Government's road programme at present involves the re-surfacing of all major highways with asphaltic concrete. The conference buildings referred to are now providing useful service as office space and a venue for meetings, and the educational programme has provided Ghana with a valuable stock of skilled personnel without which the level of implementation of programmes would have been lower still.

17. Government of Ghana, Official Journal of Parliamentary Debates, 1 March 1963, col. 102.

18. Government of Ghana, op. cit. (ref. 1), p. 4.

19. Eshag, E. and Richards, P.J., op. cit. (ref. 7), p. 368.

20. Goverment of Ghana, op. cit. (ref. 1), p. 5.

21. Central Bureau of Statistics, Economic Survey 1969, Accra, 1970.

22. Government of Ghana, Two-Year Development Plan 1968/69 to 1969/70, Accra, 1968.

23. Government of Ghana, op. cit. (ref. 8), p. v (Foreword).

24. Ibid, p. v (Foreword).

25. Government of Ghana, op. cit. (ref. 1), p. 5. "This policy together with the expansionary fiscal and monetary policies, ... was confronted in 1971 with a 28 per cent decline in cocoa export earnings, following a sharp fall in world cocoa prices."

26. Ibid., p. 5.

27. Ibid., p. 6.

28. Government of Ghana, Budget Statement 1973, Ministry of Finance, September 1972.

29. Ibid.

30. Government of Ghana, op. cit. (ref. 1), p. 6.

31. Government of Ghana, Budget Statement for Fiscal Year 1978-79, Accra, September 1978, p. 2.

32. Ibid., p. 5; and Government of Ghana, op. cit. (ref. 1), p. 1.

33. Government of Ghana, op. cit. (ref. 30), p. 1.

34. Ibid., p. 4.

35. Ibid., p. 21.

36. The President, Dr. Hilla Limann, opening a seminar for parliamentarians in Accra, said: "For the first time, Ghana has no reserves ... the country is in the red." Bankrupt Ghana, West Africa, No. 3244, 17 September 1979, p. 1714.

37. West Africa Magazine, Inflation Rates, West Africa, No. 3260, 14 January 1980, p. 84.

38. West Africa Magazine, Ghana's Credit Runs Out, West Africa, No. 3248, 15 October 1979, p. 1876. See also, Ghana Being Refused Credit, Ghanaian Times, 8 November 1979.

39. The Minister for Lands and Mineral Resources, Dr. George Benneh, in a speech to the Brekum-Jaman Citizens Association on 5 January 1980, in Cocoa Pays for Oil, West Africa, No. 3260, 14 January 1980, p. 85.

40. Government of Ghana, op. cit. (ref. 1), p. 4.

41. Government of Ghana, op. cit. (ref. 27).

42. See, for example, "Contractors Worried Over delayed Payments", The Pioneer, August 28, 1978, p. 3; and Government of Ghana, op. cit. (ref. 30), p. 22. "The strategy adopted this year ... is basically to limit the Development Budget to relatively few projects which can be completed during the year and to complete others in succeeding years ... Contractors are obliged ... to check with the Ministry of Economic Planning the status of projects before continuing with further work, since no payments will be made for any work done after September 12, without proper authorisation."

43. The committed firms will remain in the industry and develop ways of dealing with the fluctuations in demand to increase, or maintain, their share of the market.

44. See Hillebrandt, P.M., Economic Theory and the Construction Industry, Macmillan, London, 1974, pp. 16-23, for a full discussion of the effect of fluctuations in demand.

45. Hillebrandt, ibid, p. 22, writes about the British Industry: "It is suggested that the industry would be wise to accept that it is subject to fluctuation and that both it and government must find ways to alleviate some of the undesirable effects of fluctuations". Some of her suggested remedies were: forecasting future demand (planning), studying the capacity of the industry and giving adequate notice to industry of future programmes. The applicability of such solutions in Ghana is discussed in parts of this thesis.

46. Government of Ghana, op. cit. (ref. 1), p. 66.

47. Government of Ghana, Seven Year Development Plan, Annual Plan for the Second Plan Year 1965 Financial Year, Office of the Planning Commission, Accra, January 1965, p. 11.

48. Government of Ghana, Budget Statement 1974-75, Ministry of Finance, Accra, 1974, p. 32.

49. Central Bureau of Statistics, Economic Survey 1969, Accra, 1970.

CHAPTER 7

GOVERNMENT AND CONSTRUCTION

"Governments all find themselves relating to the construction industry at some point, even if involuntarily ... there is a limit to the effectiveness of government until the moment at which it accepts responsibility for construction planning as a comprehensive activity ... Only the public sector in a developing country can afford investment in technological research and development; as a rule only government employs the high-calibre staff capable of carrying it out; and only governments have the power to see it introduced into everyday practice."

- C. Cockburn, Construction in Overseas Development, Overseas Development Institute, London, 1970, pp. 18, 19 and 21.

"The Ministry of Works and Housing is the central controlling machinery of Government in the housing and works sector. It directs, supervises and coordinates the programmes and activities of eleven separate organisations within the framework of government policy."[1]

- M. Danquah (ed), Ghana: An Economic Review, 1973-75, Editorial and Publishing Services, Accra, 1975.

7.1. Introduction

Governments of the developing countries are often advised to recognise the importance of construction, formulate clear policies for it, and establish a ministry or department to deal with it. (See 5.3.3.1, 5.4.3.1 and tactic (2) in the 'Synthesis', 5.6). All writers (see Chapter 5) suggest that the formulation and implementation of programmes for improving construction industries are mainly the responsibilities of governments.

This chapter discusses, in broad terms, construction policies in Ghana, and shows that the government of Ghana has always been aware of the role a strong, viable and efficient construction industry can play in development.

Ghana has had a Ministry of Works and Housing for several decades now, overseeing the development of the industry (not only concerned with public projects as is the case in many countries). The experiences of this Ministry are considered in this chapter after briefly discussing construction policies. The policies are discussed more fully under 'Planning for Construction' in Chapter 8. It is shown that 1) construction is of such a nature that it is impossible to place effective control of all its aspects under one ministry; 2) problems of coordination arise as the volume of construction grows, as various bodies are created to deal with parts of the industry, and as the industry develops (hence the need for a dynamic approach which merely starts with the creation of a ministry); and 3) the relationship between the ministry and its subordinate organisations, among the smaller bodies themselves, between the ministry and other government ministries and agencies and within each organisation are important.

It is also made evident that creating a ministry is not as difficult as staffing it adequately, giving it the necessary status and ensuring that all other bodies on which it relies for the success of its operations also perform satisfactorily.

7.2. Construction Policies

The attention of the government of Ghana has been drawn to the local construction industry by two issues:

(a) a serious and constantly worsening urban housing shortage;

(b) the need to develop the infrastructural base of the economy and to provide amenities for the people.

Public reaction to an inefficient industry (which had led, among other things, to high construction costs, delayed projects and unfulfilled promises of social facilities by politicians) has also continually brought the matter to the fore. (Compare these with 3.5 and 5.2).

7.2.1. Housing

Housing is one of the government's priorities, and it receives detailed coverage in all national plans and budgets. Most of the references made to construction in official documents appear under the chapter headed 'Housing'. Policy statements on housing have always included programmes for promoting the growth of the local construction industry. The 1951 development plan illustrates this:

> "The government wishes to see every family living in its own comfortable home ... Cheap yet strong and decent homes are to be provided ... government is determined to end the uneconomic methods of building houses in the country. Its policy is to introduce power machines into the building industry and it will also experiment in houses that can be mass-produced ... people will be trained in ... building principles so as to supply more efficient labour ... to the industry."[2]

Under the same Plan there was also to be local production of key constructional materials, use of traditional materials, and attempts to reduce the high cost of building[3].

The basic ideas in the above policy are similar to those in the 'synthesis' (see 5.6) of current ideas on construction in developing countries. The limited effect they had on the problem is borne by the fact that by 1970, whereas it was estimated that 16,000 urban dwellings were needed annually at prevailing occupancy rates, only 6,000 units[4] were being produced, and it was remarked that:

> "If a serious attempt is to be made to improve the urban situation the capacity and efficiency of the construction industry will have to improve significantly."[5]

Efforts have not been limited to the supply side: when the above pledge was made in 1970, government also declared that it would:

> "... make more capital for housing available through building societies, housing cooperatives, banks, insurance companies, private financiers and housing finance consortia ... [and] propagate the advantages of saving or investing with a building society."[6]

There is, as yet, no national housing policy document[7] but this has not prevented government from formulating and implementing appropriate measures to ameliorate a housing situation which threatens

to assume crisis proportions. In the event, policies have been disjointed and unsuccessful but the sensitivity of every government in Ghana to the problem has increased the awareness of the need to have the wherewithal to deal with it, and hence the construction industry and its vital inputs have attracted much official attention over the years.

7.2.2. Construction and Development

Although Ghana's construction industry is most comprehensively treated when its role in the housing situation is considered, the essential part it plays in development has been clear to government. For example, housing which is not clearly directly productive and is seldom seen as a good investment[8], has been considered in Ghana not only as a means of raising living standards but also as a means of generating activity in other sectors of the economy.

> "A good housing programme provides substantial employment opportunities and builds up a reserve of skilled labour and artisans who would be available for other related constructional works. It also stimulates the development of natural resources which are basic to the housing and construction sectors and has a multiplier effect on the economy."[9]

The factors contributing to the effective growth of the construction industry and the determinants of construction capacity are also understood. In 1977, for example, government regretted that the growth of the nation's infrastructure had been:

> "... seriously hampered by a number of factors. Prominent among these are inadequacy of quarry capacity, bitumen, building materials and equipment and frequent shortage of labour. As a result, even though in money terms the sector exceeded the year's allocation, in physical terms not much was achieved."[10]

This shows that construction has failed to grow despite elaborate policies formulated for it, a point most particularly evident in the road construction and maintenance programmes where inadequate performance of the industry has contributed to delays in new projects, deterioration of the existing system, and with the limited haulage

capacity, is hindering the evacuation of export goods and food items from the hinterlands, leading not only to loss of revenue to government, but genuine hardship of the people in the urban areas. (See also 3.5). Furthermore, targets for housing programmes are not being met, schools, hospitals, offices and so on are not completed on schedule, and persons wishing to build cannot obtain the necessary materials; even if they could get finance.

7.3. Government's Responsibility

Realising the importance of a viable local construction industry government has assumed direct responsibility for the management of the industry, and apart from formulating policy guidelines for it, participates in various aspects of construction itself, in addition to its role as the main client. (See 6.5.2). The management function is performed by the Ministry of Works and Housing.

7.3.1. The Ministry of Works and Housing

There has been a ministry in charge of public construction works in Ghana since the colonial days. The present Ministry of Works and Housing is charged with the planning and control of the construction industry. It

(a) advises government on developments in the construction sector and provides a basis for the formulation and review of national policy;

(b) directs, supervises and monitors the implementation of policy;

(c) controls the award of contracts or consultancy work;

(d) promotes research and innovation in the industry; and

(e) liaises with local and foreign organisations to remain abreast with national and international trends in construction.[11]

The ministry directs and coordinates the operations of ten separate organisations.

7.3.1.1. Technical Directorates

Technical directorates were created in 1974 to complement the administrative structure of the ministry. There are directorates for Roads, Housing and Services, headed and staffed by experienced professionals. This reorganisation has enabled the ministry, a normal civil service organisation, to perform its technical duties with greater efficiency and confidence. Appointing experienced professionals to such positions enabled the nation to make use of their expertise at the policy-making level, and also raised the morale of professionals in government service by creating avenues for genuine self-advancement within the service.

Final decisions within the ministry, however, are taken by the Minister, a politician, and he has the power to set aside the advice or recommendations of professional or technical committees or individuals. Inevitably, on many occasions, policy is made on political expendiency rather than technical effectiveness. Added to this are the usual bureaucratic chains of command and channels of communication within any civil service organisation.

7.3.1.2. Overcentralisation

The Ministry of Works and Housing is one of the few government ministries without branches in the regions. Its activities are centralised in Accra; the Public Works Department (PWD) (see 7.3.2) is assigned the responsibility of executing the ministry's duties in the regions. This, in the main, implies the PWD's supervising the operations of organisations over which it has no statutory authority, and with which it is, at best, hierarchically, equal. As is to be expected, the ministry's duties in the regions are hardly attended to; anything of importance is done in Accra.

7.3.1.3. Influence and Success

The Ministry has been unable to perform the advisory role government expects of it. This may either be because its advice is never given, or is wrong, or that its advice, though correct, is not heeded. The ministry's influence over other ministries or departments controlling or determining various aspects pertaining to construction is minimal, due to the present allocation of duties and organisation of the various ministries. This is discussed later in this chapter, but to cite only one example, whereas in 1975 it was suggested that:

> "With reorganisation of [the construction] industry it is possible to draw up long-term national plans to ensure that the burden of capital investment is comfortably spread out ..."[12]

the capacity of the industry was seldom taken into consideration in the inception of development projects, and it was reported in 1978 that:

> "Over the years, a large number of projects have been started all over the country which have not been completed and are likely to remain on the books for quite some time ... constraints such as input availability have contributed to this situation ..."[13]

The ministry had also not been able to perform its control function, especially in terms of contracts and consultancy work (see 7.3.1., point (c) in its duties). There were allegations that collusion between contractors and consultants enabled the former to make dubious financial claims:

> "... the lack of effective supervision and monitoring made it possible for expenditures to be incurred for work which had either not been done or been shoddily done."[14]

The control function had been given to the Ministry of Economic Planning (see 7.5.2) some years back but it now seemed that even this arrangement was not working. It was announced, therefore:

> "... Government has directed the Ministry of Finance* to arrange periodic visits to project sites to ascertain progress of work."[15]

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* See 7.5.1

This system of contract administration had implications for contractors' operations (see 9.7.3). It also placed economic planning officers and administrators in supervisory positions over professional construction consultants, creating a situation pregnant with conflict, delays and inefficiency. Finally, it detracted from the status and prestige of the Ministry of Works and Housing. (See Fig. 7.1)

7.3.1.4. Subordinate Organisations

In addition to, and to help it perform, its duty of managing the development of the construction industry, the Ministry supervises the activities of ten separate organisations within the framework of government policy. These are:

The Public Works Department

Ghana Highway Authority

Architectural and Engineering Services Corporation

State Construction Corporation

State Housing Corporation

Town and Country Planning Department

Tema Development Corporation

Ghana Water and Sewerage Corporation

Prefabricated Concrete Products Limited, and

Rent Control Unit.

7.3.1.5. Reorganisation

The subordinate bodies have increased in number over the years, and much reorganisation has taken place.

Out of the old Public Works Department (PWD), which existed in the colonial days as a planning and executing agent for government projects, have grown several organisations. Soon after independence it was enlarged, particularly in the physical construction sphere, and renamed

the Ghana National Construction Corporation (GNCC), with

> "... charge over the planning, design, construction and maintenance of roads and bridges, public buildings, ... as well as to act as civil engineering and architectural consultants to the government."[16]

In 1966, the new military regime split the GNCC into the Public Works Department, responsible for consultancy services and the maintenance of the existing facilities, and the State Construction Corporation (SCC), a public-owned commercial contracting organisation.

The inadequacy of the PWD's executive capacity was recognised by government, in 1970, to be hindering the implementation of development programmes, and measures were taken to improve conditions of service within it to make it more attractive to qualified personnel, and also to train additional personnel[17]. These achieved little. By 1972, government had cause to state that:

> "... development projects are not carried out at the required pace because the PWD complains of lack of adequate manpower, for example, engineers and architects ... Consultancy services are still being passed out to outside consultants at very high fees."[18]

Another reorganisation exercise was initiated, which resulted, in 1973, in the carving up of the PWD into the Architectural and Engineering Services Corporation (AESC), the Ghana Highway Authority (GHA), and a residual PWD.

Thus the duties of the old PWD are now being performed by four different organisations: SCC, AESC, GHA and PWD. Moreover, the Hydraulic Division of the old PWD was merged with the Department of Rural Water Development to create the Water Supplies Division, which later became the Ghana Water and Sewerage Corporation.

7.3.1.6. Need for, and Effect of Reorganisation

Public construction needs expanded progressively after independence, and there was need for the planning, design and executing agencies to grow with them. Whether a single bigger entity could have handled them with sufficient effectiveness and efficiency is arguable but the

proliferation of organisations created problems of coordination, and was excessive, calling for new offices, workshops and storage facilities, additional salaries for new administrative staff and newly created high positions, departmental vehicles, and so on.

Furthermore, the reorgnisations were usually exercises in shuffling the same people into different, independent bodies, serving to create or strengthen inter-personal animosities amongst the heads of the various bodies, and hence intensify the problems of coordination. There are real jealousies and little cooperation between the organisations[19].

Chambers (1974) believes that, while there may be good reasons for setting up new organisations,

> "... the costs are likely to be high - in new overheads, in staff transfers ... in the energies devoted to creating the new organisation, overcoming its teething troubles, and establishing its position in the community of organisations. But weighing against recognition of these costs is the ease with which a new organisation can be recommended by a commission, committee or adviser, and its attractiveness to civil servants for whom it often provides an opportunity for advancement."[20]

Frequent reorganisation, moreover, destabilising peer groups and personal ambitions for advancement, especially amongst middle-level personnel, serves to lower workers' morale, and reduce their productivity[21].

7.3.1.7. Change

Thus, not only has the Ministry of Works and Housing itself altered in structure and outlook over the years but as new organisations were formed to reduce strains on existing bodies caused by increases in the volume of public demand for construction, the situation has arisen where the Ministry has the difficult task of integrating the closely related activities of several rival organisations jealously guarding their spheres of activity and influence and struggling to establish their independence.

7.3.1.8. Technical Arms

Of the ten subordinate bodies of the Ministry of Works, only three help it directly in its management of the construction industry. These three: PWD, GHA and AESC, are the technical arms of the Ministry. They initiate programmes, provide consultancy services, represent public sector clients throughout the construction process, and administer contracts. Being more closely involved in industry, they should also provide accurate data on developments in the field to the Ministry. Their success or failure, therefore, considerably helps or harms the ministry's effectiveness. Furthermore, being the most closely related amongst its subordinate organisations, the smoothness or otherwise of their relationships with one another, and of each with the ministry, should be a pointer to the ease or difficulty of the ministry's duty of coordinating the activities of the ten bodies. The three bodies are now considered in detail.

7.3.2. The Public Works Department (PWD)

The present Public Works Department, among other things[22]:

(a) registers and maintains records on contracts and consultants; assigns work to and certifies work from contractors and consultants; and arbitrates between contractor and/or consultants on the one hand and the employer on the other;

(b) serves on tender committees as the technical representative of departments whose works are financed from the Consolidated Fund;

(c) plans and designs minor works, and administers and maintains public utilities, including such roads as are delegated to the district councils by the Highway Authority.

7.3.2.1. Organisation and Constraints

The PWD, headed by an Engineer-in-Chief, is not only the oldest public construction organisation, but is also the best organised

geographically, with regional and district offices all over the country, each with consultancy and direct labour divisions, as well as joinery and mechanical workshops, and materials testing laboratories. Unfortunately, however, the PWD is the "Cinderella" of Ghana's construction industry. Although it had been the medium in which most of the country's more senior professionals acquired experience, and has directly trained several technicians and tradesmen, being part of the civil service, its levels of salaries and wages and conditions of service are below those of other parastatals and private organisations in the industry. The PWD is, therefore, unable to attract or keep qualified and experienced personnel.

The effect of this lack of executive capacity is most serious where the obligations of the PWD as the technical arm of the district councils are concerned. Structural designs and specifications of materials have to be vetted by the department, tasks which are vital to public safety and the development of the construction industry, and should be entrusted to adequately qualified persons. (See 9.4.3)

Annual budgetary allocations to the PWD have been inadequate, and since, moreover, it obtains little additional funds for repair and maintenance work resulting from natural hazards, it is seldom able to perform over 40 per cent of its programmes each year. The department is also unable to obtain sufficient allocations of foreign exchange to import equipment, vehicles and spare parts that it needs for its nation-wide operations.

Furthermore, the PWD is prone to all the usual difficulties faced by organisations belonging to large bureaucracies. Its efficient operation is hampered by frequent radical changes in the administrative instructions it receives from government. For example, in April, 1979, the Ministry of Finance issued a directive forbidding the advance orders of goods by public departments[23]. This means that the PWD cannot now

stockpile essential materials and components to protect itself from frequent shortages, as it used to.

7.3.2.2. Potential

The rich and wide experience of the PWD and its ideal distribution of branch offices are not being utilised, and as time passes, not only is the wasted opportunity unfortunate and expensive, but qualified personnel continue to leave the PWD for more challenging appointments in other organisations, further weakening the department.

7.3.3. The Ghana Highway Authority (GHA)

The Ghana Highway Authority, which began its operations in 1974, is responsible for[24]:

(a) planning, developing, maintaining, protecting and administering public highways and related ferries, road camps, road traffic control devices, and so on;

(b) classifying and laying down design standards on the different types of highways and ferries, and controlling vehicle usage on the highways; and

(c) undertaking research or collaborating with any research organisation with a view to facilitating its planning, development and maintenance activities,

The GHA also keeps registers of consultants and contractors. Its direct labour activities are limited to maintenance: contractors do all new work. Some of its consultancy works are delegated to private consultants and the AESC.

The Authority is controlled by a government-appointed Board of Governors. Its administrative head is designated the Chief Executive. It has branches in the regions and a few districts.

7.3.3.1. Operations and Effectiveness

The GHA does not charge fees for its services: its recurrent expenditure is met by funds from annual government budgets. Funds for capital development are controlled by the Ministry of Finance (see 7.5.1).

The decision as to which project to actually implement at any particular moment is political. The Authority is merely advisory, although it has been the target of much public and official criticism for the condition of the road network. In 1974, when the GHA became functional, government regretted that in infrastructure:

> "... emphasis .., has been on new constructional works while little attention has been paid to the maintenance of existing projects. This has led to a situation where because of lack of maintenance, ... roads and water schemes have so deteriorated that government has had to spend large sums of money on their rehabilitation."[25]

In 1979 this situation had worsened: a newspaper editorial described the roads as not "car-worthy"[26], blamed this for the short life-span of vehicles in the country, rejected the explanation given by "... those whose duty it is to put our roads into good shape and condition," and suggested that "All these could have been avoided through proper planning which is woefully lacking in this country."[27] But the GHA, in a press statement, placed the issue in a wider perspective and stated that:

> "To be able to maintain [the] roads to appreciable standards certain conditions have to be met. The conditions involve the supply of basic inputs, namely, equipment, materials and labour to help carry out the work efficiently. It is, however, regrettable that the work of the Authority had been hampered for lack of most of these inputs."[28]

7.3.3.2. Problems

The GHA faces several internal problems: its executive capacity is inadequate, the deficiency lying mainly in Quantity Surveyors, Materials Engineers, Civil Engineers and instructors for its training

division. This issue is not helped by the fact that the Authority does not have sufficient vehicles; executive mobility is low, and performance by contractors on projects is hindered.

The Authority's jurisdiction over the country's trunk roads is undisputed but some of the roads within the cities and towns are under the local authorities (and hence the PWD, see 7.3.2), and some feeder roads are controlled by the Ghana Cocoa Market Board. The areas of responsibility are not clearly defined, and there have been occasions when contracts have been entered into for the same road project by two different client agencies, when a finished road has been awarded to a contractor by one of them, or when important matters are not attended to because of lack of agreement as to whose obligations they are. To illustrate the last point, the access road to the "Hall of Technology", head office of the GHA and AESC is still untarred (a rarity in the centre of Accra) because neither the City Council nor GHA feels responsible for it.

Unless the Authority is given more executive power, greater control over funds for development and maintenance programmes, and unless the necessary inputs are available, it cannot achieve the aims set for it: the provision of safe and adequate infrastructure for road transportation commensurate with the economic development of Ghana.

7.3.4. The Architectural and Engineering Services Corporation (AESC)

The government, in 1973, intended creating a pool of professional construction expertise to act as consultants to government, and to compete with the private firms for work in the private sector. Thus the AESC was formed as a self-supporting, fee-charging corporation whose services

> "... were meant not only for development projects in Ghana but also eventually for projects in sister African countries where shortages of skilled manpower become obstacles in the implementation of development projects."[29]

The main objectives of the corporation were, therefore:

(a) to provide consultancy services in respect of all works required by, or on behalf of, the Government in the field of engineering, building and architecture, urban and regional planning and development;

(b) to carry out technical studies in planning, designing and the supervision of such infrastructural works as will assist the economic and social development of the country; and

(c) to undertake the investigation, survey, design, administration and management, both in Ghana and elsewhere, of all kinds of architectural and engineering consultancy works whether public or private.

The Corporation keeps registers of contractors and professional consultants, and provides the technical manpower for the tender boards, and urban planning committees. Theoretically, the AESC has complete jurisdiction over all public projects:

> ".,. no Ministry or Department of State, Government agency or statutory corporation shall engage the services of any consultant for any work falling within the objects of the Corporation or within its competence without the prior approval in writing of the Commissioner of Works and Housing."[30]

In 1978 it initiated over 400 building projects all over the country at an estimated cost of more than ¢100 million[31]. It has a Board of Governors appointed by government, and its executive head has the title of Chief Consultant. The corporation has a branch in each of the nine regions.

7.3.4.1. Effectiveness

Despite the lofty ideals that prompted its formation, the AESC is, as yet, unable to handle all public projects, and continues to pass several jobs to private consultants. On only one occasion, in 1977, has it tried, unsuccessfully, to win a job outside Ghana[32]. Several public

institutions and parastatals refuse to route their requirement for consultancy services through it, and some often accuse it, with some justification, of being too slow.

The AESC is in danger of being dragged into insolvency by the massive debts owed to it by clients. The Chief Executive pointed out in 1977 that:

> "Our earnings ..., remain largely paper earnings. Much of our fees are yet to be settled by some Government Departments. Presently clients owe us to the tune of about ¢6 million."[33]

The outstanding debt had risen to ¢12 million by 1978[34], and to ¢18 million by 1979[35]. The ironical and increasingly desperate situation exists whereby government departments are effectively throttling to death a public-owned corporation which lacks the power to enforce payment of its fees.

7.3.4.2. Constraints

The AESC is a multi-disciplinary consultancy organisation providing a variety of professional services, and employing, or needing to employ: architects, structural, mechanical, civil and services engineers, land and quantity surveyors, planners, valuers, materials scientists, geotechnicians, economists, and so on. It has to compete with the private sector and other public institutions for these persons, most kinds of whom are scarce in Ghana. But, as a public corporation, there is a limit to the level of remunerations it can offer, and hence it has been unable to attract sufficient qualified personnel.

Within the AESC there is a curious situation whereby architects appear to enjoy a favoured position. In a corporation which employs such a variety of skills, 8 out of the 9 positions of Regional Consultant are held by architects[36]. The special status of the architect is further emphasised by the authority assigned to him in the forms of conditions of contract the AESC now uses. (See 9.5.6). Inevitably, there are

intra-organisational strains and conflicts, which bode ill for the efficiency of the corporation.

The AESC's effective operation is hampered by the insufficiency of transport facilities. This contributes towards the delays in inspections, certification and issuing of instructions, all of which have adverse effects on contractors' operations.

7.3.5. The PWD, GHA and AESC

The PWD, GHA and AESC are different in several respects and similar in others. Together, they constitute the technical arms of the Ministry of Works and influence its ability to advise government on policies related to the industry.

7.3.5.1. Administrative Interference and Legal Status

The PWD is part of the civil service, the GHA is a body corporate relying on government for all its finance, and the AESC is a commercial profit-making corporation. But none of them operates independently of government; the difference in their statutory classifications mean little. All the organisations are subject to frequent administrative interference, in addition to the fact that they must generally operate under the provisions of government policy. Furthermore, the bodies lack the power and the facility to enforce the statutory rights they have been given. For example, although the AESC "... may charge fees in respect of any of its works ...,"[37] it can hardly take legal action to enforce payment of its fees: the defaulters are state departments or central government itself. Again, although

> "The laws of Ghana demands that landlords and other interested organisations and individuals should inform the Ghana Highway Authority in writing of their intention to cut any portion of the country's roads,"[38]

organisations and individuals show scant regard for the law and roads are often defaced in many ways. The GHA cannot do more than "deplore"

the practice, expressing its "concern" and appealing for cooperation.

It is, obviously, unwise to create organisations without giving them the machinery and ability to enforce rules vital to their efficient operation or even survival.

7,3.5.2. Team Structures

The three organisations are fossilised in their procedures. Their project teams are usually led by the architect (or the engineer in the case of GHA), following the old British practice adopted during the colonial era. New ideas on the nature of the construction process[39], and of the use of flexible organisation structures for construction projects, such as involving the contractor in the design or the employment of a project manager, have not been tried. Yet all three bodies are multi-disciplinary consultancy organisations which have scope for experimenting in alternative team structures. The mix of the various skills called for by different projects are not the same[40], and methods for selecting project teams and their leaders should be pragmatic instead of the adherence to the dubious yardstick of convention.

7.3.5.3. Rules of Thumb

The staff of the three bodies are overworked, and they have, subsequently, adopted various short cuts and rules of thumb in their work. Drawings and other production information are usually scanty, specifications are duplicated from previous copies and bills of quantities are seldom prepared (see also 9.5). Government has had cause to lament that:

> "In spite of the slow growth [in physical construction output], expenditure on construction increased remarkably. Among others, this was the inevitable result of the proliferation of projects and the award of contracts for projects some of which had not even been well designed at the time of tender."[41]

The rules of thumb create difficulties at the construction stage:

contracts are held up while important details are clarified, there are disputes over payments, and estimated costs are exceeded, causing strains on budgeted funds, and leading to delays in payments to contractors.

7.3.5.4. Duties

The three organisations still retain some professional links: the AESC does some road and civil engineering design for the GHA, and the PWD maintains the official residences of the personnel of both the GHA and the AESC. Thus the break up of the old PWD did not result in the formation of separate, self-sufficient bodies.

There are, inevitably, instances of duplication: each body is authorised to register consultants and contractors. This has resulted in the maintenance of three separate registers, each organisation insisting on dealing only with the contractors or consultants registering with it.

Doing little research, none of the three bodies is able to advise the Ministry of Works and Housing on trends within the construction industry. Official policy, therefore, lacks the basis of informed investigation and is unable to make the desired impact on the problems confronting the industry. (See also 3.6.3. and 3.7). Despite genuine efforts to solve them, the problems remain, getting worse by the day.

7.4. A Ministry?

By its very nature (see 3.6.1-8), it is impossible to place all of the aspects of construction activity under one ministry. Quite apart from the fact that no single ministry can be independent, the facets of the industry under the other ministries can be so vital that the Ministry of Works itself has little overall control of it. The Ministries which control various aspects of construction in Ghana are

now considered.

7.5. Demand and Finance

The public sector is responsible for the majority of total demand for construction activity (see 6.5.2). Again, apart from the fact that the Ministry of Works and Housing receives its operational funds from central government chests, public sector projects are paid for through the machinery established to control the disbursement of public funds. This machinery is, thus, of direct and indirect consequence to the construction industry.

7.5.1. Ministry of Finance

The Ministry of Finance formulates government's financial policy, advises it on budgetary, investment and insurance matters, and controls credit, investment, state revenue, banking and currency issues. It prepares the annual estimates of revenue and expenditure for the public sector.

Under present legislation, the Minister of Finance is the final signatory of all drawings on the public exchequer. For the construction industry, this means that all payment certificates for projects, financed by central government, have to pass through the Ministry in Accra before payment can be effected. This entails long delays[42].

7.5.1.1. Demand

In its control of budgetary allocations, the ministry ultimately determines what type of projects are initiated, where and when, and thus influences the nature and size of demand for construction. Its power to manipulate lending rates and the availability of credits are also of significance to the industry (see 3.6.2).

7.5.1.2. Balance

Because of the time lags in construction, if the control of expenditure and interest rates are not to have adverse effects on the development of the industry, considerable skill is needed to arrive at the proper balance at appropriate times[43] (see 3.6.3). Not only does the Ministry of Finance not possess the personnel with this type of skill, but also, being more concerned about managing the economy as a whole, it does not pay any detailed attention to the growth of the construction industry (see 6.5.2). This is an area where an influential Ministry of Works, armed with relevant data from its technical arms, could be very useful (see 7.3.1.3).

7.5.2. Ministry of Economic Planning

After existing as a separate entity, then being merged with, and later hived out of the Ministry of Finance, Ghana's national planning unit is now a separate Ministry. It formulates government's general economic policies, prepares and reviews development plans, and advises government on the day-to-day management of the country's economy, setting and reviewing priorities and advising on the allocation of funds for development. In this way, the Ministry determines the long-term prospects for the industry in Ghana.

The Ministry also coordinates, negotiates for, administers and evaluates all foreign aid and technical assistance of whatever kind to Ghana.

7.5.2.1. Project Implementation

The Implementation Unit of the Ministry of Economic Planning with branches in each of the regions, controls and supervises the effective execution of development projects. Its officers undertake physical inspection of projects for a dual purpose: firstly, it provides feed-back for planning, identifying problems and storing information on

execution to help future planning or the review of present plans. Secondly, it enables the officers to confirm or challenge the stage of construction shown on interim certificates before they are endorsed by the Regional Commissioner, serving to delay payments due to contractors, and hence affect the efficiency of the construction industry. (See 9.7.3).

7.6. Land

Government's policies on land and machineries for implementing them determine the ease with which prospective developers can obtain land, and the length of time it takes them to do so. The Ministry of Lands and Mineral Resources is the agency for formulating and effecting land policy in Ghana, The organisations under its control include the Department of Lands and the Lands Commission.

7.6.1, The Department of Lands

The Department of Lands administers all statutes which affect land in Ghana. It registers and keeps all documents and records on land transactions. It acquires land on behalf of government, controls the payment of rents, grants and annuities in respect of land leased or acquired by government, and provides advice on land values and estate management to public organisations. It is headed by the Chief Lands Officer, and has branches in all the regions.

7.6.2, The Lands Commission

Under the Lands Commission Act (1971), all government plots of land, grants of timber, mining and other concessions and leases, are allocated by the Lands Commission. It comprises the Minister of Lands and Mineral Resources as Chairman, and representatives from the regions. These allocations had, prior to the Act, been made by the Lands Department which was accused by the public of irregularities and

malpractices[44].

7.6.3. Land Costs

The high rate of development, especially in the urban areas, in recent years, has led to an escalation of the price of land. The Five-Year Plan (1975-80) lists among the difficulties facing the construction industry, "... the high cost of land ... and the difficulties involved in securing title to land."[45]

7.6.4. Construction and Land

It is instructive to paraphrase the remarks of the chairman of a committe on land use planning[46]. He called for an end to "the free for all approach to the use of land". The way in which land was apportioned needed serious review. Urban land had become very scarce, and land disputes abounded. Existing regulations and the misuse of land had led to the ironical situation whereby, in the midst of abundance of land, the country was experiencing hunger. This was frustrating prospective developers. (See 9.3.1-5 for a detailed discussion of land issues in Ghana.)

7.7. Materials

Since construction is essentially a service industry which requires a variety of materials and components (see 3.1), the availability, distribution and level of prices of materials have much bearing on its efficiency. These important aspects are under the control of certain public agencies.

7.7.1. Ministry of Trade and Tourism

The Ministry of Trade and Tourism is responsible for promoting and controlling Ghana's internal and external trade. It supervises the distribution of goods within the country and controls their prices. It

also administers the country's import control policies.

All plant and equipment used in Ghana, and most of the construction materials and tools are imported (see 6.5.3), and licences have to be obtained for them. In the country's present economic situation (see 6.4.5-6) there is the need for a system which channels the scarce foreign exchange to the most important items. But the allocation of import licences is not always rational. It was reported in 1979 that:

> "There are ... examples of important local factories lying idle, like the Tema Steelworks and cement factories, while import licences go to people to import the goods which the factories should be producing ... [it urged government] to put its foot down against those who grant the letters of credit."[47]

This haphazard allocation of import licences is detrimental to the development of the local construction industry since it has an adverse effect on the present and future availability of construction materials.

7.7.2. The Prices and Incomes Board

Established in 1972, the Prices and Incomes Board, comprising a Chairman and seven members, is responsible for:

(a) formulating an appropriate incomes and prices policy for the successful development of the country's economy; and

(b) recommending to government policy measures required for the regulation of wages and salaries, interests, profits, dividends, rents and prices.

7.7.2.1. Black Market

In the face of serious shortages of goods, price control has not worked in Ghana. It has spawned a thriving black market in which hoarded goods are sold at multiples of the official prices. (See also 10.7.2) There are indications that price control measures worsen the situation: the dealers quickly detect and exploit loopholes in any new arrangements to force prices further upward. A member of the government

admitted (1979) that:

> "Experience ... has shown that the more stringent price control the government introduces, the more the goods vanish from the markets, to the disadvantage of the public, thus causing artificial shortages."[48]

First fines, then short prison sentences, longer sentences and threats of death by shooting failed to deter would-be offenders. At one stage (May 1979) it was commented:

> "The control price of cement is ¢13.80 per bag but it is common knowledge that dealers ... sell cement between ¢50 and ¢60 per bag."[49]

7.7.2.2. Effect on Construction

It is virtually impossible to work out realistic estimates for construction projects, and claiming for fluctuations and settling rates for new items of work are hazardous tasks fraught with arbitrariness and conflict.

The inability to check the upward trend in prices has tended to depress the demand for construction from all sectors and constrained the output of the materials and components manufacturing concerns. At a general level, it has reduced workers' purchasing power, lowering their morale, reducing productivity and encouraging demands for higher wages to worsen an already serious inflationary situation in the country. (See 6.4.6).

7.7.3. Ministry of Industries

The Ministry of Industries formulates, interprets and supervises the implementation of government's industrial policies. The Manufacturing Industries Act (1971) provides that the establishment of any new manufacturing industry or the expansion of an existing one must be approved by the ministry. The affairs of all existing industries are regulated by the ministry, which also advises government on the preparation and implementation of the country's industrial import

programme.

7.7.3.1. State of Manufacturing Industry

Industrial development in Ghana occurred at a rapid pace after independence, with the state playing a key role (see 6.4.2). But the public enterprises lost money persistently until 1968 when the Ghana Industrial Holding Corporation (GIHOC) was created to manage the 20 existing industries[50]. Since most of the factories need imported inputs (see 6.4.2), and the Ministry of Trade has not adopted a rational approach to the allocation of import licences (see 7.7.1) most of them lie idle for long periods, and some have now been shut down temporarily.

A direct illustration of the Ministry of Industries' ineffectiveness in the performance of its licensing and control functions is the over-capacity in certain sectors of industry, at the same time as other sectors such as building materials are relatively unexplored[51]. (See Chapter 10 for detailed discussion of materials.)

Under government's current attempt to rationalise the nation's industrial base, it will now only accept applications for the establishment of new factories in the following categories: agricultural enterprises, food processing, small-scale or export-oriented enterprises using local raw materials, development of local building materials, foundries and engineering works[52].

7.8. Manpower

Skilled and unskilled labour constitute, arguably, the construction industry's most important resource. The quality of this resource is therefore of paramount importance. In Ghana, manpower development and labour policies are under the control of various ministries.

7.8.1. Ministry of Education and Culture

Pre-university education, universal and free, is the responsibility of the Ministry of Education and Culture. Present policies for the sector aim at:

(a) expanding and consolidating facilities for educating both children and adults;

(b) reforming the structure and content of education to align it with the country's manpower needs;

(c) making education meaningful and practical, with emphasis on acquisition of skills, qualities of leadership, self-reliance and creativity; and

(d) raising the quality of teachers and teaching in educational institutions.

Actual administration and coordination of pre-university education rests with the Ghana Education Service, established in 1973/74: the Ministry retains the policy formulation and financial control duties. Direct management of primary and secondary schools is discharged by a matrix of central government, local authorities, religious and philantropic organisations, private bodies and individuals.

7,8.1,1. Higher Education

The National Council for Higher Education, set up in 1969, has administrative responsibility for all universities and other institutions of higher learning in Ghana. It advises government on, and coordinates the academic and research programmes of the various institutions.

7.8.1.2. Training

Formal and informal craft training is administered by the National Vocational Training Institute (see 11.5) and management development is the responsibility of the Management Development and Productivity Institute (MDPI) (see 11.7.2).

7.8.1.3. Diffusion

The government has assumed full and direct charge of manpower development in Ghana; it bears almost all educational expenditure of both public and private education and training institutions. Unlike the situation in some countries, there is no independent body (like the Construction Industry Training Board of Great Britain) in charge of training for the construction industry. Training is, therefore, under several institutions without adequate coordinating links, and the institutions are mainly out of touch with industry, which makes training internally out of balance[53] (see Figure 11.1)

7.8.2. The Department of Labour

The Department of Labour, under the Ministry of Labour, Social Welfare and Cooperatives, enforces legislation relating to labour, and oversees matters pertaining to industrial relations. Its functions include:

(a) registration of labour; operation of employment centres; and collection and publication of information on employment trends and opportunities;

(b) inspection of workplaces to ensure safety, health and welfare of workers, and to ascertain wages and service conditions; and

(c) maintenance of peaceful relations between employers and workers in the country and conciliation in industrial disputes.

There have been few strikes in Ghana, and fewer still in the construction industry. Industrial disputes have been over salary/wage demands, medical, canteen, housing or transport facilities or allowances, or over delays by employers in implementing collective agreements. Officers of the Labour Department have been successful in defusing several tense situations, although, on some occasions, central government has intervened.

7.8,2.1, Wage Policy

In addition to fixing the salary structure for its own employees, government stipulates a minimum wage to be paid to workers in both the public and private sectors. This becomes the basis used to establish wages for all categories of workers[54].

The Articles of Agreement and Conditions of Contract for all types of public projects (see 9.5.6) require that contractors pay their workers at the rate fixed by government. The cost of labour in Ghana is thus not dictated by market forces: the wages are not related to productivity nor to the relative scarcity of labour as compared to plant and equipment. (See 12.2).

7.8.2.2. Labour Policy and Employment Practices

Government can also dictate the conditions of service of all workers, issuing directives on medical care, housing and transport facilities, safety at work, and so on. Most important, it can exercise overt or covert control on the number of employees a firm may employ. For example, in 1972, in the face of a high level of unemployment, government declared that in the public sector,

> "In view of our declared policy against retrenchment of labour, and the high level of personal emoluments, recurrent expenditure cannot be cut down without creating additional unemployment. This we will not do."[55]

And for the private sector it issued:

> "... an order forbidding employers to lay off any number of workers for any reason whatsoever without the written permission of the Commissioner for Labour, Social Welfare and Cooperatives."[56]

In response to situations like these, the construction industry has adopted flexible employment practices; its workers are, predominantly, casual employees who enjoy few rights. (See also 3.6.5).

The use of casual labour by the industry thwarts the successful creation and nurturing of a pool of manpower gaining experience and

improving its quality as it works from one project to another. The importance of manpower as a resource of construction puts the Labour Department in a very sensitive position in relation to the industry.

7.8.3. Cooperatives

7.8.3.1. Tradition

Ghanaian traditional life is socialistic in nature, and involves much cooperation amongst members of the extended family, the village, the district, clan or tribal group. This manifests itself in farming, caring for infants or the elderly, housebuilding, and communal construction of common facilities. (See also 1.4.5-6 and 4.4.2). This tradition is, however, weakening in the 'modernisation' of the society attended by the institutionalisation of individualism, competitiveness and reliance on materialism. (See 1.4.6)

7.8.3.2. Benefits

The potential gains from the communal spirit could be enormous. In construction, its effect could occur on both the supply and demand sides: on the one hand leading to the formation of building cooperatives, self-help project teams, or even commercial village-financed construction or building materials manufacturing firms, and on the other, credit unions, housing cooperatives, or even client consortia.

7.8.3.3. The Department of Cooperatives

The Department of Cooperatives is charged with the development, supervision and extension of all cooperative activities in Ghana. It has been involved in the formation of societies of farmers, small industrialists, traders and builders; consumers, prospective house-owners, credit unions, and a Cooperative Bank.

The department has formally assisted few builders cooperatives, such as the Brong Ahafo Builders Cooperative and the Tema Cooperative

which builds the houses of the Tema Cooperative Housing Society.

By 1975, the department had organised several hundred credit unions all over the country, with total savings of about 315 million cedis. It has not been so successful in the area of housing cooperatives, although the current development plan stated that more of these would be established[58].

The executive capacity of the Department acts as a constraint on the 'Self-help Projects' subsector (see 4.4.2) of Ghana's construction industry: it hinders the formation of builders cooperatives in a bid to expand contracting capacity. (See 15.9).

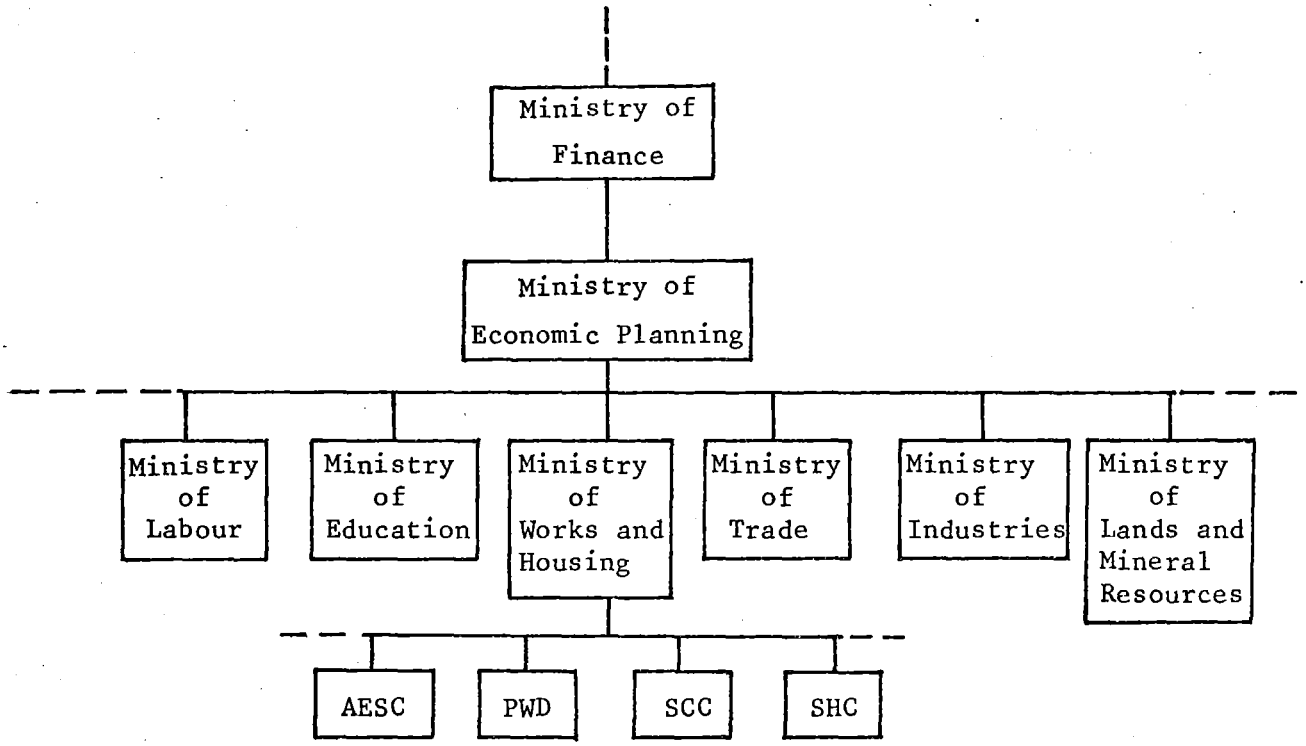
7.9. Conclusion

Ghana has had a Ministry of Works since the colonial days and, over the years, organisations subordinate to it have been created to help it perform its task of managing the local construction industry. However, because of the diffuse nature of construction activity, aspects of the industry come under the control of various other ministries and departments (see Fig, 7.2). The issue in Ghana, as in many other developing countries which already have Ministries of Works performing duties in excess of their supervision of public projects, is not one of creating a Ministry for construction: it involves the following points, which would also apply if a new ministry were to be needed.

7.9.1. The Macro Level: Inter-Ministerial Relations

Since no one ministry can control all aspects of construction, it is important to consider the place of the Ministry of Works in the governmental system ie its status in the community of organisations, its links with other bodies, and the extent of its cooperation with them. It is necessary for the ministry to be empowered to formulate, and financially enabled to implement policies specific to the industry. (See Fig. 7.1).

FIGURE 7.1. A Theoretical Construct of the Place of the Ministry of Works and Housing and its Subordinate Bodies in the Comity of Organisations



7.9.2. Micro Level: Intra-Ministerial Relations

Construction is a specialised field, and any ministry in charge of it would require professional personnel. This would lead to conflicts between such persons and the administrators who are members of the larger civil service. In Ghana, as in most other countries, the senior positions in the service are held by a close-knit group of conservative and self-preserving administrators with a grip on government's policy-making machinery. Moreover, final decisions are taken by politician-Ministers. The professional, usually in an advisory rather than executive position, faces frequent frustration. Establishing technical directorates in Ghana has not resolved the problem. It is an issue which calls for imaginative measures from government.

7.9.3, Staffing

Obtaining qualified, experienced and reputed professionals for high technical posts within the ministry is important. Where

FIGURES 7.2. Major Government Organisations Involved in Construction

Aspect of Construction	Organisation	Main Duties	Remarks
Management of the Construction Industry	Ministry of Works and Housing	Overall management of the industry and control of ten specialist technical organisations	The Ministry lacks sufficient status and power, and its subordinate bodies are under-staffed, ossified and competing
Demand for Construction	Ministry of Economic Planning	Long-term demand and project implementation	Finance most influential ministry in Ghana. It competes with Economic Planning. National finance system entails long delays in payments to contractors
	Ministry of Finance	Annual public sector budgets, control of national economy and public finances	
Land	Department of Lands	General administration of all lands, maintenance of land records	Land matters are complex in Ghana, prices are high and litigation common. Department of Lands lacks prestige and power
Materials	Ministry of Industries	Administering all industries and licensing new ones	Industrial structure cause for present concern. Materials shortages frequent. Import licensing irrational, price and distribution controls lax. Existence of black market.
	Ministry of Trade and Tourism	Control of external and internal trade	
	Prices and Incomes Board	Fixing and control of prices	
Manpower	Ministry of Education and Culture	Planning and control of pre-university education	Education and training infra-structure elaborate and well advanced but programmes diffused and poorly coordinated. Minimum wage fixed by government, unrelated to productivity. Government can legislate against retrenchment of manpower. Potential of traditional cooperative spirit unutilised.
	Council for Higher Education	Administration of higher level education	
	Department of Labour	Employment and Wage Policy	
	Department of Cooperatives	Promotion and administration of all types of cooperatives	

professionals prefer the private sector or parastatals to the civil service and hence the ministry, or where such persons are simply unavailable, this will be a problem.

7.9.4. Subordinate Bodies

Organisations will be created within or under the ministry to help it with its task of administering the industry. The efficiency of these subordinate bodies, the relationships between them, their collective ability to provide the ministry with a sound basis for policy formulation, and the ability of the ministry, in turn, to coordinate their activities are also worthy of consideration.

7.9.5. Difficulty of the Task

Construction is a multi-faceted industry: it is difficult to legislate for desirable effects in all its sectors at any one time (see 3.6.1-8). Seemingly harmless and unrelated policies tend to have severe repercussions for the industry. Formulating and timing measures to achieve specific results is a complex and hazardous task. For a ministry for construction to be really effective and to achieve the respect of its compatriot bodies (see 7.9.1) it needs to be able to perform this unenviable task (see also 7.9.3-4) as well as coordinate the activities of ministries and departments whose normal operations, overtly or by implication, are of consequence to the industry.

7.10. Notes and References

1. "Government" here and elsewhere in Part III is used broadly as a collective for the number of governments that Ghana has had since it was given internal self-government in 1951.

2. Government of the Gold Coast. The Development Plan 1951: Being a Plan for the Economic and Social Development of the Gold Coast 1951-56, Accra, 1951, pp. 20-21.

3.. Note that Ghana was called the Gold Coast until it attained independence on 6 March 1957.

3, Ibid, p, 11.

4. Government of Ghana, One Year Development Plan, July 1970 - June 1971, Accra, 1970, p. 141.

5. Ibid., p. 142.

6. Ibid., p. 142.

7. Although a working party was established in 1976 to formulate guidelines for such a policy, its report has not been acted upon by government.

8. Abrams, for example, cites a number of different attitudes to housing, (a) that which holds that housing competes with the productive sector for resources, and thus investment should be focused on the latter and on items that increase productivity and directly promote economic growth - as in Kelly, B. (ed), Housing and Economic Development, The Report of a Conference at the Massachusetts Institute of Technology, April 30-May2, 1953, Cambridge University Press, 1955. p.18.
(b) that which suggests that investment in housing, though desirable, should be limited to 'musts' - as in M.F. Milikan, The Economist's View of the Role of Housing, in ibid., p. 26.
(c) the attitude necessitated by socio-political realities which have made it imperative (in most countries) for comprehensive national housing programmes to be formulated and implemented - C. Abrams, Housing in the Modern World, Faber and Faber, London, 1964, p. 113.

9. Government of Ghana, Five Year Development Plan 1975/76-1979/80, Part II, Accra, 1977, p. 409.

10. Government of Ghana, Budget Statement for Fiscal Year 1978-79, Accra, 12 September 1978, p. 30.

11. The duties of the Ministry of Works are paraphrased from M. Danquah, (ed), Ghana: An Economic Review, 1973-75, Editorial and Publishing Services, Accra, 1975.

12. Ibid.

13. Government of Ghana, op. ci.t (ref, 10), p. 22.

14. Ibid, p. 24.

15. Ibid., p. 16.

16. Information Services Department, Ghana: An Official Handbook 1972-3, Accra, 1974, p. 198.

17. Government of Ghana, op. cit. (ref. 4), p. 118.

18. Government of Ghana, Economic Measures for Financial Year 1973-74, Ministry of Finance, Accra, 1973, p. 23.

19. A visit to the "Hall of Technology", headquarters of both AESC and GHA (built for the old PWD but completed after the reorganisation) illustrates this. The building has, physically, been divided into two with separate entrances, security services, lifts and canteens. It is unheard of for office space, equipment or vehicles to be shared by the two bodies.

20. Chambers, R., Managing Rural Development, Ideas and Experience from East Africa, Scandinavian Institute of African Studies, Uppsala, 1974, p. 26.

21. Modern organisation theory views formal systems as complemented by the informal set which comprises, for example, "... cooperative systems of people with career aspirations competing for advancement, and a political system in which individuals and departments compete and cooperate for power". - Pugh, D.S. et al (eds), Writers on Organisations, 2nd Ed., Penguin, 1971, pp. 46-47. See also 15.4.1.-3.

    Frequently destabilising these systems has repercussions for the various organisations, tending to reduce efficiency.

22. Unless otherwise stated, the duties of the organisations in this part of the thesis (Part III) are paraphrased from: Government of Ghana, An Official Handbook 1976, Information Services Department, Accra, 1977, p. 245.

23. Public Works Department, Engineer-in-Chief's Annual Report for 1978-79 (unpublished).

24. Government of Ghana, op. cit. (ref. 22), p. 257.

25. Government of Ghana, Budget Statement for Fiscal Year 1974-75, Ministry of Finance, Accra, 1974.

26. Daily Graphic Editorial, The State of Our Roads, The Daily Graphic, 27 March 1979, p. 2.

27. Ibid., p. 2.

28. Ghana Highway Authority, The State of Ghana's Roads, Advertiser's Announcement in the Ghanaian Times, 5 January 1979, p. 10.

29. Government of Ghana, op. cit. (ref. 22), p. 259.

30. Ibid, pp. 259-260.

31. Ministry of Works and Housing, A.E.S.C. Forges Ahead with Building Projects, in Works and Housing Today (the Ministry's journal), Vol. 1, No. 2, August 1978, p. 32.

32. A.E.S.C., Re-examination of the Consultant, in The Consultant, House Journal of the AESC, Vol. 2, No. 1, May 1977, p. 10.

33. Ibid., p. 10.

34. Nyame-Kumi, E., Work Harder than Before, Chief Consultant's New Year Message in The Consultant (AESC), Vol. 3, No. 1, May 1978, p. 3.

35. This figure was disclosed to the author in a discussion with the Chief Executive in May 1979.

36. The only non-Architect is a very senior Structural Engineer. The sudden elevation of architects (in many cases over their seniors in terms of experience) over the other professions at the formation of the AESC was a cause of bitter dispute within, and some staff resignations from the organisation.

37. AESC, Journal Introducing the Corporation, AESC, Accra, 1973, p. 6.

38. Ghana Highway Authority, op. cit. (ref. 28), p. 10.

39. Such as the work of the Tavistock Institute, see Interdependence and Uncertainty, Tavistock, London, 1966; Higgin, G. and Jessop, N., Communications in the Building Industry, Tavistock, 1975; and Turin, D.A. (ed), Aspects of the Economics of the Construction Industry, Macmillan, 1975.

40. Special requirements of clients differ, and change with time; site conditions and non-availability of particular resources might also call for different approaches to the construction process. Sometimes aesthetic considerations are paramount, sometimes the structural; on some occasions costs need to be strictly controlled, on others time is the most important parameter.

41. Government of Ghana, op. cit (ref. 10), p. 24.

42. See Chapter 9 for a detailed account of the payment procedure for central government projects.

43. See also, Hillebrandt, P.M., Economic Theory and the Construction Industry, Macmillan, London, 1974, Chapter 2.

44. But the Lands Commission has not been faultless. A committee (1978) appointed to examine some of its lease allocations observed that: "Some of the areas were acquired by Government 'in the interest of the public' but the allocation of such plots do not sincerely appear to be 'in the interest of the public' as there are instances of Government organisations requiring residential plots but not having them; and yet these ... plots are allocated to individuals." - Ministry of Lands and Mineral Resources, Statement on Revesting of Lands Decree, Advertiser's Announcement, The Ghanaian Times, 17 April 1979, p. 5.

45. Government of Ghana, op. cit. (ref. 9), p. 414.

46. Gyimah, K., Land Use Committee Sits in Accra, The Ghanaian Times, 5 January 1979, p. 3. Reporting the remarks of the chairman of the committee, Professor E.A. Boateng.

47. Ghanaian Times, Can You Pay Ten Percent? Editorial, 27 March 1979, p. 4.

"Ghana's experience with exchange and import controls has not been happy. In the 1960's the control system produced such dissatisfaction that a serious and prolonged attempt was made to liberalise

[it] ... Yet in the end liberalisation collapsed ... Several serious consequences of the system emerged. First, the restrictive regime contributed to the economic atrophy of the 1960's ... Second, the broad objective of industrialisation was almost completely obscured in the indiscriminate distribution of protection ... Third, the administrative system proved incapable of consistently careful management of foreign exchange." - Leith, J.C., Foreign Trade Regimes and Economic Development: Ghana, Columbia University Press, New York, 1974, p. 163-4.

48. Major-General N.A. Odartey-Wellington reported in Price Control: Help Government Enforce Effective System, Daily Graphic, 27 March 1979, p. 1.

49. Daily Graphic, Why, oh why Cement Factory? Editorial, 18 May 1979,, p. 2.

50. Some of the reasons given for the failure of these enterprises include poor location, poor design, obsolete machinery, poor quality of products, political patronage in appointing staff, overstaffing and bad debts owed to them by individuals and parastatals.

See Jones, T., Ghana's First Republic 1960-66, Methuen, London, 1976, and Government of Ghana, op. cit. (ref. 22), p. 156.

GIHOC, through corporate planning and a policy of consolidation and rationalisation, has been able to make some profits since its formation.

51. An inter-Ministerial committee appointed to analyse and appraise applications for manufacturing licenses reported in 1977 that: "... a considerable number of manufacturing enterprises are already in existence with combined installed capacity well above the normal requirements of the local market, and in some cases with a margin for the export market, provided the necessary inputs could be made available. It is, however, well known that the foreign exchange situation of the country has imposed unavoidable limitations on the ability of these establishments to produce to any appreciable level of capacity." - Government of Ghana, op. cit, (ref. 10), p. 20.

52. Ibid., p. 20.

53. See Chapter 11 for a detailed discussion of the manpower situation and manpower development in Ghana.

54. Through collective bargaining agreements between unions and employees. See 11.11.2 and 12.2.2.

55. Government of Ghana, Budget Statement 1973, Ministry of Finance, Accra, September 1972.

56. Government of Ghana, op. cit. (ref. 22), p. 353. This was one of government's measures to reduce unemployment. See Chapter 12, The State Construction Corporation, for a consideration of how this policy has affected parastatals who are unable to resort to flexible employment practices.

57. Government of Ghana, op. cit. (ref. 9), p. 416.

CHAPTER 8

PLANNING

"The policymakers in the developing nations should pay attention to the possibility of considering construction as a part of their national economic planning and thus provide continuity in its operation."
- Moavenzadeh, F., The Role of the Construction Industry in the Development Process, Public Policy, Vol. XXII Spring 1974, No. 2, p. 240.

"The Seven-Year Plan provides that the growth target for Ghana during the period till 1970 should be not less than 5.5 per cent per annum. In 1963 the economy of Ghana grew hardly at all ... actual production grew by just 1.2 per cent as against a growth of over 2.5 per cent in population ... In 1964 ... there has been no general resumption of economic growth. Industrial production has been practically stagnant and commerce and other activities dull ... The economy has not shown a rate of growth in 1963 and 1964 commensurate with the sacrifices which the country has made in order to undertake these investments."
- Government of Ghana, Seven-Year Development Plan, Annual Plan for the Second Plan Year 1965 Financial Year, Office of the Planning Commission, Accra, January 1965, pp. 9 and 11.

8.1. Introduction

Developing countries are usually advised to formulate plans for their construction industries in two ways:

(a) to plan the volume of construction; determine the amount of the major types of construction that would be required in each region or district, in each year[1]; (see 5.4.3.2, 6.5.3.3 and 5.4.4.1)

(b) to plan the resources that would be needed to meet such levels of construction activity. (See 5.3.1.1. and 5.4.3.2).

Writers also often suggest that governments should publish in advance their programmes for construction to enable the industry to prepare for the projected demand, and should also endeavour to keep

demand for construction relatively stable[2]. (This is an extension of point (a)). (See also tactic (3) in the 'Synthesis' 5.6).

This chapter considers the nature and history of national economic planning in Ghana, shows that:

(1) construction has always been considered in such planning;

(2) the industry is often mentioned in annual budget statements and other official publications,

(3) construction has been the subject of some government-appointed committees; and ultimately,

(4) Ghana does its construction sum and plans for the industry's vital inputs.

It demonstrates further that the nature of the construction industry makes planning for it difficult[3], and underlines the importance of strong, efficient data-gathering and implementation machineries in addition to the planning unit. It also shows how the administrative juxtaposition of various personalities and departments promotes or frustrates planning and plan implementation. By showing the similarity between construction policy implemented or prevailing in Ghana and the proposals usually made for the developing countries it is concluded that the mere existence of plans and policies will not guarantee success and that, since most of the proposals will be shown to have achieved limited success in Ghana, there is need for some modifications or changes in emphasis or direction.

8.2. Planning in Ghana

Beginning with the 10-Year Development Plan of 1919, Ghana has had programmes for national socio-economic development for 1, 5 or 7 year periods. The introductory paragraphs of the 1951 plan outlines the major motivation and objectives of planning in Ghana:

> "In a world of uncertainties and constantly changing circumstances it is impossible to lay down a plan for the future which states in minute detail all that it is hoped to achieve ... The most that can be done, therefore, is to set down a statement of objectives which, if circumstances allow, can be attained in the years ahead .... It must remain flexible, for it will require constant review and modification as the years pass but its existence will ensure that development proceeds as a balanced whole rather than a series of uncoordinated projects. This will result in the best use being made of the available resources ..."[4]

The various plan documents are mainly a review of prevailing socio-economic conditions, a statement of national aspirations, and detailed consideration of programmes and projects by economic sectors, that would permit the achievement of the defined targets.

8.2.1. History

Ghana prides itself with being:

> "... the first government to adopt modern long-term planning..."[5]

The various plans have placed emphasis on different sectors of the economy to reflect the requirements at the particular stage of economic development. (See also 6.4.1-7).

The 10-year Plan of 1919 (The Guggisberg Plan) aimed at creating the infrastructural base of the economy and saw the building of the Takoradi Harbour, the railway and road networks, with the intention of promoting primary production, especially of cocoa and minerals.

The 1951 Plan, mainly an example of the 'shopping-list' method, stressed the productive services, with particular attention to agriculture "... in its widest sense"[6]. It was followed by a consolidation plan in 1957, which was to

> "... provide for the completion of the first [1951] development plan projects, to sustain employment, to provide for reasonable development activity in the regions ... and to consolidate development work already carried out under the first development plan."[7]

The Second Five-Year Plan of 1959, while recognising the importance of agriculture, had industrial development as an objective. This was

also the principle of the Seven-Year Plan of 1963, which sought the modernisation of agriculture and the promotion of industrialisation based on import substitution. This plan: "... followed the modern technique of planning ..."[8] The policy of industrial production, relying on imported raw materials, led to severe balance of payments problems which necessitated strict controls on imports.

The Two-Year Plan (1968) sought the acceleration of economic growth and the reduction of unemployment which had become a major problem. The liberalisation of imports to support industrial expansion was one of the important measures. The same basic principles underlined the succeeding One-Year Plan of 1970[9].

The current Five-Year Plan (1975-80) aims at building

> "... an independent national economy, firmly structured on the resource potentials of our land and the culture of our peoples ... Planning will thus be directed to the expansion, in the shortest possible time, of the total amount of real resources in order to create a strong and progressive society based on equal opportunity for citizens ..."[10]

In terms of construction, major capital projects are listed and programmed under each industrial sector, and their estimated costs shown for each year of the plan period. The development of the construction industry's input requirements is also considered. (See 8.4). The plans are generally an outline of public-sector programmes with an indication of projects that government expects, or will assist, through subsidies and the like, the private sector to initiate.

8.2.2. The Planning Process

At the beginning of the planning process guidelines are issued to various ministries and departments by the Ministry of Economic Planning, to form the basis for the preparation of the various sector programmes. Thus local, regional and national agencies who would eventually execute the projects are involved in the preparation of the plans. The final

document is prepared by the Ministry of Economic Planning which, together with the Ministry of Finance, oversees the implementation of the projects and programmes, reviews progress, and makes any necessary adjustments.

8.2.2.1. National Economic Planning Council

The current Plan (1975-80) was prepared by the National Economic Planning Council, established in 1974 by government proclamation[11]. The Council has 33 members, with the Head of State as Chairman. Other members include the Ministers of Economic Planning, Agriculture, Industries, the Governor of the Bank of Ghana, Director of Budget, the administrative heads of all the key ministries including Works and Housing, representatives of the Trades Union Congress, the Manufacturers Association, Chamber of Commerce, Cooperatives, Houses of Chiefs, the Universities, and well-recognised economists, bankers, businessmen and others of high repute[12].

The council is charged with advising government on general economic development objectives and priorities; mobilisation and allocation of resources; preparation, implementation and monitoring of development plans; and measures for directing and stimulating the initiative of the citizenry. Six of its 33 members are designated permanent members, and have full-time responsibility for the various sectors and regions of the economy.

8.2.2.2. Regional Planning Committees

Each region has a Regional Planning Committee with the Regional Commissioner as Chairman and the Regional Economic Planning Officer as secretary. Other members include the Regional Administrative Officer, Regional Heads of Departments, representatives of the district councils and persons of prominence in or from the region. Their duties include[13]:

(a) the development of human and material resources by identifying main

areas of growth, bottlenecks hindering various productive sectors, and opportunities for new ventures;

(b) the coordination of development programmes of different government agencies to make them harmonious and consistent with each other and with those of private enterprises;

(c) the monthly review of progress in the implementation of the national development plan and budget and submission of quarterly reports; and

(d) the encouragement of the growth of new centres of economic activity in the region.

There are also, in each of the key ministries, planning units which act as points of contact with the Ministry of Economic Planning.

8.2.3. Implementation

Despite the long experience in modern long-term planning and the existence of well-written, voluminous national development plans,

> "... planning efforts in Ghana have failed as guidelines for government actions ... The major factor that has served as a constraint is the reluctance of policy makers to adhere to the discipline required to sustain successful development planning."[14]

The problem in Ghana has not been the under-utilisation of pledged funds since, over the years the projected spending targets have been reached or sometimes substantially exceeded[15].

The authors of the 1975-80 Plan underlined two sets of obstacles to plan implementation.

> "The first set of forces may be classified as beyond the control of those charged with plan implementation. They include inadequate political commitment, political instability, natural disasters and severe unanticipated adverse movements in the terms of trade.
>
> "The second set of forces are relatively more within the ambit of planners and include inadequate involvement of the agencies expected to implement the plan in the process of plan preparation, inadequate institutions, shortage of skilled manpower and inadequate policy instruments and projects."[16]

8.2.3.1. Political Change

Priorities and programmes for development have to be initiated or approved by the government, and should, essentially, be in harmony with the political and social aspirations of the existing government. (See 1.3,6. and 1.4.8). The latter have changed over the years as different regimes have assumed power (see 6.4.1-7). The industrialisation and expansionary policies of the first post-independence government involving substantial state participation in economic activity, were radically altered by the military government of 1966 which reduced public expenditure and actually suspended or closed down on-going or operating projects and enterprises. After a period of stabilisation and consolidation it launched a new programme (the 2-Year Plan) to seek further economic growth.

The second civilian government (1969-72) continued the policies of the outgoing military regime but embarked upon an ambitious rural development programme, which was a marked departure from previous policies. The main economic philosophy of the second military government (1972-79) was self-reliance and the utilization of the cultural institutions and attitudes of Ghanaians in productive activity.

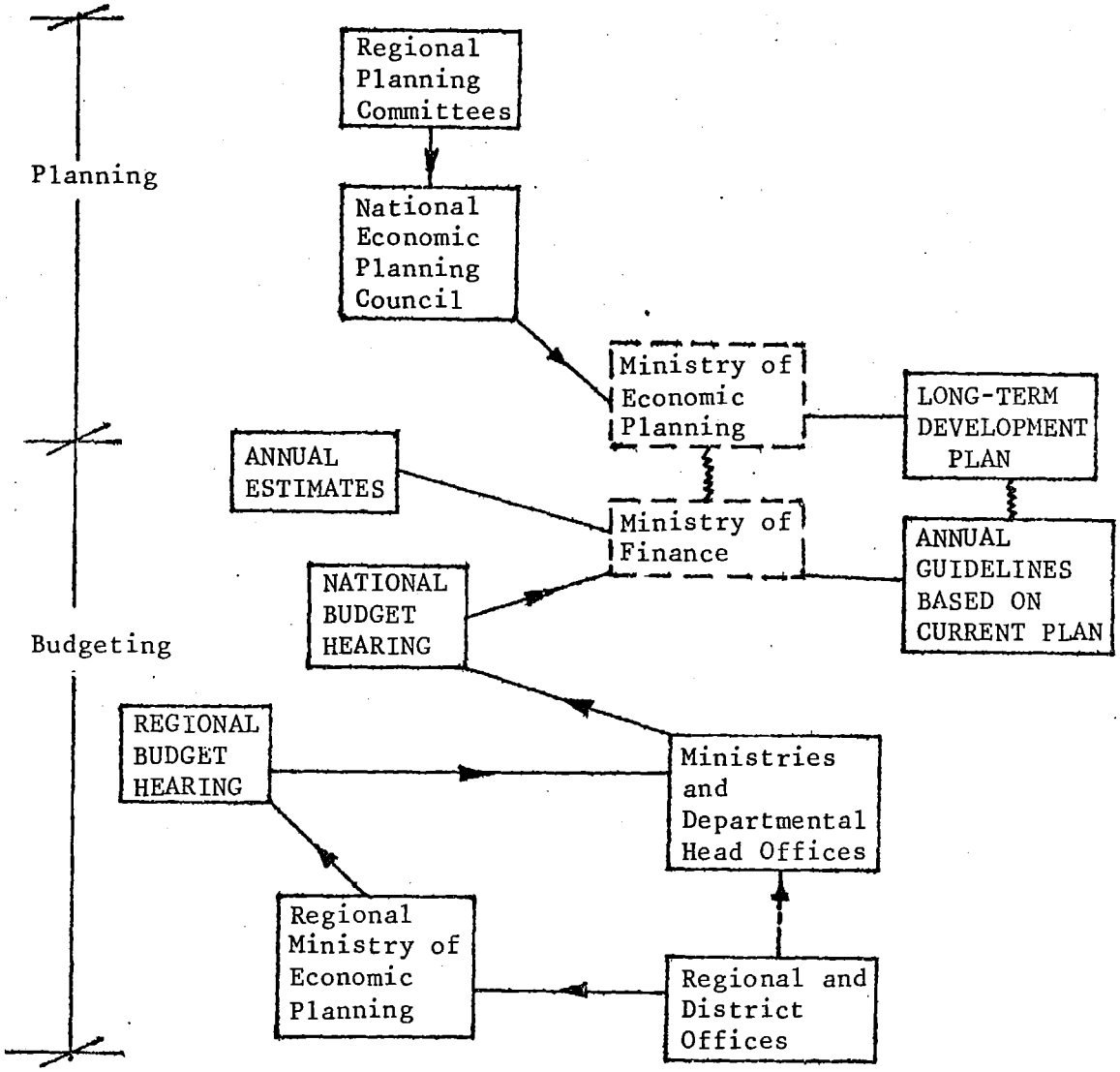
The rapid, often radical changes in political direction have robbed the development programmes formulated in Ghana of the benefit of long-term continuity.

8.2,3.2. Rivalries, Personalities, Executive Capacity

Government officials and politicians can withhold vital support from particular projects for various reasons. Personalities become important at the implementation stage: the blend among planners, administrators and politicians necessary for successful plan execution has not always been achieved in Ghana. There are also the institutional rivalries among the Ministries of Economic Planning and Finance, and the

executing agencies[17]. (See Fig. 8.1)

FIGURE 8.1. The Planning and Budgeting Processes



Key:

These Bodies formulate the Documents indicated

A common breach of Laid-Down Procedure.

Very weak Link.

Note: The dichotomy between the Ministries of Finance and Economic Planning, is a source of frequent conflict.

Add to these the shortage of qualified personnel, the lack of liaison between economists and professional design, construction and cost consultants, which results in insufficiently defined and estimated

projects, the divorce of the citizenry from planning decisions and hence the absence of its support or even emergence of its opposition at the implementation stage (see 1.3.6), and it becomes clear the sort of formidable obstacles that plan execution is up against in Ghana.

8.2.4. Parameters

Planners are held in a straight-jacket as government policy determines the parameters within which they should plan. As one government admits,

> "A combination of policies based on political pressures, tardiness and reluctance to review policies even when they have been found to be ineffective or harmful has led to unnecessary retardation of growth in a country, which by all accounts, is well endowed with both natural and human resources."[18]

To give but one example of this, the second military government (1972-79) refused to devalue the currency despite expert advice from home and abroad, when it was clear that the cedi had lost its value. An unofficial market dealing in foreign currency developed, smuggling of goods increased and the economy suffered. The government also had to forego foreign assistance because it would not abide by the guidelines of the International Monetary Fund which prescribed a package including devaluation of the cedi and cuts in expenditure. Meanwhile, it could be seen that:

> "While on the official market the cedi was equivalent to US $0.87 on the unofficial market individuals sold the cedi for between US $0.12 to US $0.14."[19]

Apart from uncertainties such as weather changes, natural disasters and developments in the international economy that disrupt national plans (see 8.2.3), local politics are also important imponderables in planning. Many factors vital to successful plan implementation cannot be legislated for, and the planning exercise tends to become little more than academic.

8.2.5. Targets

One of the reasons why planning has failed to make any remarkable impact on the economy in Ghana is that the machinery for collecting and analysing statistical data is weak. Targets have been proved inaccurate in several instances. To cite only two examples:

(1) "The Seven-Year Plan provides that the growth target for Ghana during the period till 1970 should not be less than 5.5 per cent per annum. In 1963 the economy of Ghana grew hardly at all ... actual production grew by just 1.2 per cent as against a growth of over 2.5 per cent in population"[20], and

(2) "The Two-Year Plan projected a price increase of only 4 per cent. By contrast the consumer price index increased by nearly 16 per cent over the period 1967 to 1969."[21]

The data-collection system is now considered.

8.2.6. Data Collection and Analysis

The systematic collection of statistics has a long history in Ghana. There was a population census in 1891, and trade and other data had been collected until the establishment of the Office of the Government Statistician in 1948. This later became the Central Bureau of Statistics (CBS) under the Ministry of Economic Planning. Its duties are to:

(a) collect, compile, analyse, abstract and publish statistical information relating to the commercial, industrial, agricultural, social, financial, economic and general activities and conditions of the people of Ghana;

(b) advise government on policy relating to statistics; and generally organise a coordinated scheme of economic and social statistics relating to Ghana.

The Bureau, headed by the Government Statistician, and based in Accra, has no branches in the regions. It publishes a number of bulletins, amongst which is the annual "Economic Survey", in which data on construction output, value added, employment, capital formation and

so on, are presented. It also publishes annually building cost index numbers.

8.2.6.1. Problems and Effectiveness

Although the Statistics Act (1961) defines sanctions against any persons refusing to cooperate with the Government Statistician or his staff in the normal execution of their duties[22], the Bureau's activities are frustrated by delays and lack of cooperation from the organisations from which it collects data[23]. For some reason, the penalties for such "offences" have never been applied.

The CBS has also been unable to attract or keep qualified personnel[24]. Furthermore, the low printing capacity in the country causes delays in processing the Bureau's publications. The result of these factors is that the CBS has been unable to fulfil the duties entrusted to it. Present statistics are outdated. Current data on national accounts and construction are up to 1974; the last issue of the "Economic Survey" covers the period 1972-74, and was published in 1977. The one for the period up to and including 1976 is now (1980) being prepared.

This means that there is no accurate scientific base on which to base targets for national development plans, annual budgets, or policies for particular sectors like trade or manpower.

8.2.7. Planning with Poor Data

Where plans and budgets are based on 'educated' guesstimates, or pure conjecture, the consequences can be economically damaging. For example, there have been serious divergences between credit guidelines issued by the Bank of Ghana for public-sector borrowing from the banking system, and what was actually needed:

> "In the 1976/77 financial year for example, actual credit to Government from the banks was ¢719.2 million and exceeded the projected limit by over 500 per cent. Worse still, by the end of the first six months of the 1977/78 fiscal year, Bank of Ghana credit for financing the deficit had already exceeded the figure of ¢735 million which was more than the record of ¢719.2 million reached for the whole of the 1976/77 fiscal years."[25]

Socially, wrong data might encourage government to make promises to the populace that it cannot fulfil. This has been a common occurrence in Ghana. For example, the

> "... Two Year Plan aimed at 8,000 low cost houses in the period. Out of these 1776 were built."[26]

Such phenomena can fuel social unrest.

Considering the construction industry, government revenue is over-estimated, it overcommits itself by initating too many projects at a time, and having carefully itemised them (see 8.3), gives them out on contract. Then shortfalls in projected funds become apparent, and government either has to resort to deficit financing, or call a mandatory halt to some of the projects. Each of these measures has actually been used on occasion: both have been harmful to the industry. Inflationary deficit financing has tended to increase demand for construction in both the public and private sectors, leading to severe shortages in the industry's resources, and an escalation of building costs. Suspending projects under construction or in the pipeline has created operational difficulties for individual firms and tended to depress the industry. (See 6.5.2).

Even when projects are not terminated or suspended, inaccurate financial planning leads to delays in payments that should be made to contractors working on public projects. Moreover, lack of data on foreign exchange receipts for ensuing fiscal years does not permit the advance importation of essential constructional materials, nor does the absence of accurate estimates of present and future requirements of vital human and material resources help the formulation of appropriate

measures for their continued development. (See 6.5.3 and 8.4).

Generally, government does not have sufficiently reliable information on the performance of the economy as a whole, or of its various sectors. Where the targets in plans are questionable, it becomes difficult to institute adequate control mechanisms, and indiscipline and inefficient performance result. As the authors of the 1975-80 Plan made clear:

> "With the flow of very poor information or the absence of such flows, policies and programmes are ad hoc and very difficult to assess ... the very poor data base contributes towards an inability to establish clear goals, functional or operational division of responsibilities and the associated personnel and supporting services required for efficient performance for the achievement of ... over-all targets ..."[27]

8.3. Annual Budgets

The prevailing development plan provides the basis for the preparation of government's annual budgets. These are in two parts: the first is a statement of economic policies and a brief outline of major programmes with details of estimated revenue and expenditure for the public sector, and an account of funds provided for the various ministries and departments, as well as major development projects. The second is an itemised list of projects, by Ministries, and the amount of money allocated to each of them in the fiscal year. This is called "the Estimates", a voluminous collection of every single public project, no matter how small, in every part of the country. Thus Ghana does its "construction sum" each year (see 8.1). Yet this has not helped to stabilise demand: several problems plague the budget preparation, implementation and control exercises.

8.3.1. The Budgeting Process

The preparation of government's annual budget begins when the Ministry of Finance circulates a letter which outlines financial policy

and priorities for the coming year, and hence schemes most likely to be approved by government.

8.3.1.1. Regional Level

Each department in the regions prepares its estimate of capital and recurrent expenditure, and the regional office of the Ministry of Economic Planning, having already helped in the preparation of the departmental estimates, arranges a regional budget hearing at which heads of the departments present their budgetary estimates. This is to allow the Ministry to coordinate the various development schemes. But since it is merely advisory, with no real enforcing authority, the Ministry's advice is usually ignored, and schemes are often presented directly to Accra[28]. (See Fig. 8.1).

This situation has resulted in unbalanced or unisectoral development in several parts of the country. For example, hospitals and estate houses remain unoccupied for several years pending the supply of one or the other, or both, of water and electricity because the Housing, Water and Sewerage, and Electricity Corporations have separate, uncoordinated schemes[29].

8,3.1.2. Head Offices

At the head offices of the departments the regional heads defend their estimates, which are, invariably, too high. Officials usually underestimate projects and tend to spread a small financial figure over a large number of projects with the hope that, once the project has begun, government would finance it to completion. Again, at this stage, not even the senior officials of the department are aware of the financial constraints on the economy (see 8.2.7), and hence what the realistic size of the budget or number of projects should be. Furthermore, many projects (except those using standard drawings) would not have been

designed (even sketchily) at this point, nor would an accurate cost estimate have been prepared.

8.3.1.3. The Ministry

The departmental estimates are presented to the Ministry of Economic Planning which compares the estimates with what the economy can bear, and suggests which projects should be implemented. It then phases the projects out, preparing a programme for each, and proposing a financial allocation to it. The final budget and estimates are prepared by the Ministry of Finance. But the 'listed' projects are not the only ones initiated in practice.

8.3.2. Pirate Projects

In addition to the 'approved' list of projects for which funds are allocated in the annual estimates others can be awarded to contractors by high government officials, especially regional commissioners, as a means of ingratiating themselves or the government with the local population or with contractors lobbying for work. This has served to increase pressure on the public exchequer; the money runs out before the end of the fiscal years: interim payment certificates go unhonoured for months, and friction between client and contractor mounts. (See 7.5.1-2 and 9.7.3).

In 1978 government decided to act against this practice. Rather than trying to enforce discipline amongst its own senior members and officials, it put the onus on contractors: it refused to pay for any unlisted contracts[30]. There is the ironical arrangement whereby any contractor, after having been awarded a contract by government, has to enquire (by writing to the Director of Budgets, Ministry of Finance) from the government whether provision has been made for that project in the (government's) budget.

8.3.3. Bureaucracy and Arbitrariness

The phenomenon of unlisted or pirate projects is but one aspect of the weakness of the budgetary control system. Public sector finances can only be disbursed by the Ministry of Finance, and this after a devious bureaucratic process deliberately prolonged and complicated[31] to establish a measure of accountability through a large number of checks and counter-checks by officials[32].

On construction projects, the annual budgetary allocations, ideally the amount of work that the average contractor would do in a year, are arbitrarily established: they are unrelated to prepared construction programmes, being figures arrived at by administrators on considering the total sum granted the particular department, and the number of projects approved for that sum. On some occasions, smaller allocations are made to deliberately slow down work on the project, and projects already in progress may be suspended by being excluded from the list. When a conscientious contractor executes work above the amount provided, the normal procedure is to continue to pay him in the hope that not all projects will exhaust their budgetary allocations. The purpose of the financial planning exercise is thus defeated[33].

8.3.4. Evaluation

The government of Ghana has, for several years, done its "construction sum" but this has not succeeded in ensuring that demand for construction is stable, due to poor assessment of the performance of the economy, weakness and lack of coordination in the budgetary control system, unwillingness of government to follow its own policy guidelines, or dogmatic adherence to inappropriate ideas, bureaucracy, inter-organisational conflict and non-cooperation, and clashes of personalities.

8.4. Resource Planning

In most of the country's development plans and budgets, planning for the improvement and expansion of the local construction industry has mainly involved an indication of government's broad policies for the construction industry. These have included: the creation or strengthening of institutions, production and supply of materials, development of human resources, provision of finance for the industry and its clients, and the review of procedures and regulations.

8.4.1. Policy and Circumstance

Like general economic policies (see 6.4.1-7) those for construction have been guided by prevailing socio-economic conditions and priorities (see also 3.3-4). In 1951 the country had considerable reserves of foreign exchange but its desire to expand the infrastructure and provide housing for the people was being impeded by inadequate docking facilities at the country's ports, and hence shortages and long delays in the supply of materials, most of which were imported. Government intended to produce materials locally, to introduce mechanisation as a means of increasing the capacity of the industry, and to train personnel in construction skills.

This policy was pursued until 1966, and saw the establishment of factories for producing items such as cement, steel, paints, aluminium sheets, precast concrete, ceramic sanitary fittings, and bricks and tiles. Courses for training professionals and technicians in construction were also introduced. This same period witnessed the reorganisation of the Public Works Department into the more effective Ghana National Construction Corporation. (See 7.3.1.5).

The Two-Year and One-Year Plans of 1968 and 1970 respectively emphasised the need to reduce reliance on imports and use labour-intensive methods of production. The demand for construction was to be

kept at reasonable levels:

> "Road improvement and reconstruction work will only be undertaken when such activities are considered essential in terms of their economic returns and to the extent that public administration can cope with the additional demand."[34]

Specific measures included the easing of import restrictions, especially on cement; at the same time, it was declared that:

> "Government will encourage research into the extensive use of local building materials."[35]

Indigenous contractors would be encouraged; the better ones among them would be given more contracts. It was also

> "... the policy of the Government to seek the full and proper utilization of the nation's human resources in order to achieve economic progress ... this ... can only be attained if there is an effective and coordinated adaptation and application of our educational systems and facilities to the task of raising the skill levels of the labour force through formal training as well as learning on the job ... accompanied by an adequate incentive system to stimulate our skilled workers to contribute adequately to the development effort."[36]

8.4.2. Current Programme

The most comprehensive attempt to plan the development of the construction industry's resources was made in the current plan (1975-80). Production targets for key constructional materials were established (see Table 8.1); generally, government would seek:

> "... the expansion and rehabilitation of existing building materials industry ... the encouragement of research into new materials; promotion of the use of local materials through demonstration projects, The dissemination of research findings through [regional] information centres, and the effective regulation of building materials distribution."[37]

The standardisation of building components would also be pursued, and attempts would be made to reduce building costs.

A programme for training was formulated: this would involve:

> "... an expansion of the programme for artisans and technicians offered at the polytechnics ... at other technical institutes ... [and] increases in the intake of ... professional categories."[38]

As for local construction firms, the aim was to increase

TABLE 8.1: Five Year Development Plan (1975-80) - Production Targets for Selected Building Materials

Material	Unit	Estimated Production 1975	Production Targets				
			1976	1977	1978	1979	1980
Cement	Tons	550,000	600,000	660,000	700,000	750,000	800,000
Pipes	Tons	26,000	30,000	40,000	50,000	60,000	60,000
Roofing Sheets	Tons	50,000	55,000	60,000	80,000	80,000	80,000
Burnt Bricks	Pieces	1,000,000	10,000,000	18,000,000	20,000,000	20,000,000	20,000,000
Wall Tiles	Pieces	40,000	48,000	58,000	75,000	80,000	80,000
Water Closets	Pieces	10,000	15,000	20,000	25,000	30,000	30,000
Hinges and Doorlocks	Pieces	3,000,000	3,300,000	3,600,000	4,000,000	4,000,000	4,000,000
Window and Door Frames	Pieces	500,000	550,000	600,000	700,000	800,000	800,000
Paint	Gallons	1,000,000	1,200,000	1,400,000	2,000,000	2,000,000	2,000,000

Source: Five-Year Development Plan, 1975/76 - 1979/80.

> "... contracting capacity by encouraging professional personnel to enter the ... industry while efforts will be made to improve the managerial and technical competence of existing contractors."[39]

Some of the legal and technical constraints on the industry would be removed through the formulation and implementation of:

> "... policies and strategies ... to streamline and strengthen the physical planning system [and] ... Revision of the national building code ... to allow for the use of local building materials."[40]

8.4.3. Ad Hoc Group of Experts

The government appointed, in 1976, a working party to prepare guidelines for a national housing policy. The group observed, in their report, that the housing problem had persisted in spite of isolated efforts to deal with it, and that a projection of future demand showed an alarming picture which called for determined and urgent action to increase housing production and reduce building costs. But it was

> "... not possible for the building industry to grow rapidly unless some infrastructural facilities are also simultaneously developed. These ... include facilities required for material production and for the production of plant and equipment necessary for the construction industry."[41]

The strategies to be adopted to achieve increased efficiency within the industry should include:

> "Assistance to private contractors; organisation of training courses for supervisors; promotion of systematic industrialisation of various construction operations; application of most appropriate technology in construction operations; ..."[42]

Training programmes should find ways of utilising productively the abundant unskilled labour in an economically viable way. Physical planning legislation and land management procedures were defective and needed reviewing. Research should be supported, especially studies of a socio-economic nature which would ensure that a better understanding of the people's cultural heritage would permit optimum utilisation of the available human and material resources.

The group also suggested that data on construction should be more effectively collected by strengthening and staffing the Central Bureau of Statistics at the national and district levels, by increasing the technical staff of local authorities to enable them collect statistics, and by encouraging research institutions to pursue statistical surveys.

8.5. A Comparison

There is a remarkable similarity between, on the one hand, the past and present construction programmes and policies of the government of Ghana and the advice of its own experts, and on the other hand, the recommendations made by the international experts on the subject. (See Chapter 5, especially the 'Synthesis", 5.6).

The clear implication is that whereas the general belief is that developing countries lack any long-term plans, programmes or policies for their construction industries[43], Ghana has not only had these for decades, but has actually been trying, or has been and is being advised to, and is intent on continuing to, do basically what the experts have been prescribing for the solution of the problems of the construction industries of developing countries. Thus it is pertinent to use Ghana's experiences to assess the current ideas on construction in developing countries, as this thesis attempts to.

8.6. Evaluation

A measure of the limited success of all the elaborate plans and programmes for construction is underscored by the persistence of the problems they were meant to solve. The issues facing the industry in 1951 were outlined as: the reliance on imported materials, high cost of building materials, shortage of skilled labour and the lack of mechanisation in the industry[44].

In 1975 there were the same problems and more: the undeveloped

state of local building materials and dependence on imported materials, high cost of construction and land, obsolete planning legislation and building codes, ineffective land management systems, shortage of staff, and a lack of coordination between institutions which had been created to deal with the problems of the industry[45].

It may be argued that with the volume of construction activity increasing over the years, the problems were bound to become more numerous or more serious. But plans and programmes are drawn up essentially to anticipate, and try to alleviate future developments.

A detailed appraisal of the policies formulated for the development of each resource is essayed in following chapters, but generally the plans for construction have foundered for the same reasons as national development plans: poor data base, rapid political changes, lack of commitment on the part of politicians and administrators, inter-organisational conflict and personal rivalries, and shortages of professional staff (see 8.2.3.1-2). The failure of the economy to grow, and in particular shortages of foreign exchange, has also impeded the implementation of some vital programmes such as the expansion of materials producing industries.

Most important, the inability of the industry to improve its efficiency has also had implications for it: construction projects such as educational facilities, factories and roads, needed to support the supply to the industry of its own vital resources are delayed, accentuating the shortages and other difficulties.

8.7. Consideration of Objectives

Thus, even at this early stage in the thesis, and before particular issues are considered in detail, it is clear that measures not dissimilar to those found in current theories for the improvement of construction in developing countries (see 'Synthesis" 5.6) have had limited success

in Ghana. This thesis will endeavour to identify, in detail, factors that hindered the successful implementation of these measures, and those that might have helped. This will help in the formulation of a practical programme for developing Ghana's construction industry, and also in the suggestion of modifications to current ideas on the construction industries of developing countries.

8.8. Conclusion

8.8.1. Construction in Development Planning

Programmes for the construction industry in Ghana's development plans are not grouped under a single chapter for construction, but are to be found under sector headings such as manufacturing (materials industries), transport (road projects and road contractors), housing (the whole industry) and manpower development (skilled personnel). In the budget, construction is covered under infrastructure and housing. The casual observer may mistakenly conclude that the industry is neglected in the plans and budgets.

The annual estimates are, essentially, an attempt to do the "construction sum" for the public sector.

8.8.2. Plans not Ends

The existence of construction programmes, plans and lists of projects has not made much difference to the prosperity of the local construction industry since they have not succeeded in influencing day-to-day actions which are more in the form of reactions to crisis situations. The political commitment and the machinery needed to implement and control such measures are lacking.

Plans and classified lists of projects are not ends in themselves, and will remain academic unless the will, system and resources for their implementation are available. These have been lacking in Ghana. The

economy has failed to reach the levels of expansion expected of it, and its various sectors have, therefore, been unable to obtain the wherewithal on which the programmes for their development rely. (See 6.4.2-7).

8.8.3. Factors to Consider

The foregoing (8.8.2) does not mean that planning should not be undertaken; what it suggests is that planning alone is not sufficient. In calling for planning and the virtues thereof one should attempt to assess whether the circumstances and machineries for obtaining accurate and realistic plans, for successfully putting the plans into operation and for monitoring, controlling and reviewing them are available and whether the data base for long-term planning exists. Otherwise, planning is, at best, a window-dressing prestige exercise and the document merely an addition to the mouldy volumes on official desks and library shelves: worse, a plan with erroneous targets can be harmful.

8.8.4. Suitability of Ghana

Without having considered all the aspects in detail it is clear that, generally, the main proposals in current theories on construction in developing countries have not had significant success over some three decades of application in Ghana. This indicates that there is a case for assessing them, which this thesis tries to do. The similarity between these main proposals and policy in Ghana makes the country's experience particularly suitable for the purpose.

8.9. Notes and References

1. Cockburn (1970) calls this "doing the construction sum". He advises that: "The planning departments need to know, ... the amount and cost of building and engineering work, type by type, region by region, year by year, that is going to be required of the industry if the country's development proposals are going to be fulfilled." - Cockburn, C., Construction in Overseas Development. A Search for Appropriate Aid and Trade Measures for the 1970's. Overseas Development Institute Limited, London, 1970, p. 21.

2. That is, endeavour to follow its own plans and programmes as much as possible.

3. See Sections 3.6.8 and Chapters 6. and 7.

4. Government of the Gold Coast, The Development Plan: Being a Plan for the Economic and Social Development of the Gold Coast 1951-56, Accra, 1951, p. 1A.

   For more detailed accounts of the history and nature of economic planning in Ghana see, for example, Mensah, J.H., A Perspective Plan for Ghana (Part 1), The Economic Bulletin of Ghana, vol. 6, No. 3; and Ewusi, K., Economic Development Planning in Ghana, Exposition Press, New York, 1973.

5. Government of Ghana, Five Year Development Plan 1975/76-1979/80, Part I, Accra, 1977, p. 85.

6. Ibid., p. 85.

7. Government of Ghana, The Consolidation Development Plan 1957/58-1958/59, 2 vols., Ministry of Finance, Accra, 1957, Vol. 1, p. 5.

8. Government of Ghana, op. cit. (ref. 5), p.86.

9. In the plan period, "... increase in imports was deliberate since the previous restrictive import regime had retarded production and caused capacity utilisation of installed plant and equipment to fall to extremely low levels." - Government of Ghana, One Year Development Plan July 1970 - June 1971, Accra, September 1970, p. 26.

10. Government of Ghana, op. cit. (ref. 5), p. 26.

11. Government of Ghana, An Official Handbook 1976, Information Services Department, Accra, 1977, p. 45.

12. Present members include economists such as Mr. E.N. Omaboe (former Government Statistician), Professor Twum-Barima, Professor E.A. Boateng, Dr. J.L.S. Abbey (former Government Statistician), Dr. G.K. Agama (former deputy head of the Cocoa Marketing Board) and bankers such as Dr. K.D. Fordwor (who became President of the African Development Bank) and Mr. J.H. Frimpong-Ansah (former Governor of the Bank of Ghana).

13. Government of Ghana, op. cit. (ref. 5), p. 88.

14. Ibid., p. 85.

15. This is evinced by the persistent budget deficits. The problem in Ghana is over- rather than underspending, particularly in the public sector.

16. Government of Ghana, op. cit. (ref. 5), p. 86.

17. At a news conference on assuming office in 1979, the new President, Dr. Hilla Limann, proposed to combine the Ministries of Finance and Economic Planning, a measure which he hoped ".. would make for more efficiency: there had been times when they had seemed to be competing against each other rather than cooperating." - Matchet's Diary in Accra, West Africa, No. 3247, 8 October 1979.

18. Government of Ghana, Budget Statement for Fiscal Year 1978-79, Ministry of Finance, Accra, September 1978, p. 1.

19. Ibid., p. 4.

20. Government of Ghana, Seven Year Development Plan, Annual Plan for the Second Plan Year 1965, Office of the Planning Commission, Accra, January 1965, p. 9.

21. Government of Ghana, op. cit. (ref. 9), p. 10.

22. See Government of Ghana, op. cit. (ref. 11), pp. 62-3.

23. The Government Statistician, Dr. J.L.S. Abbey, wrote: "... we have had to grapple with the problem of cooperating agencies not meeting datelines given to them to submit data." - Central Bureau of Statistics, Economic Survey 1972-74, Accra, 1977, Preface.

24. In a preface to Central Bureau of Statistics, Economic Survey 1969-71, Accra, 1976, Dr. J.L.S. Abbey wrote: "The last issue of the 'Economic Survey' ... was published in 1970. There are many reasons which militated against publication of the Survey but the main factor has been the massive 'brain drain' which had plagued this Office since 1968." Again, in the following issue of the Survey, Dr. Abbey remarked that "The problem of the Bureau continues to be the inadequacy of qualified professional personnel which has given rise to delays." - Central Bureau of Statistics, op. cit. (ref. 23), Preface.

    See also, Omaboe, E.N., Some Observations on the Statistical Requirements of Development Planning in the Less Developed Countries, The Economic Bulletin of Ghana, vol. 7, No. 2, 1963.

25. Government of Ghana, op. cit. (ref. 18), p. 2.

26. Government of Ghana, op. cit. (ref. 9), p. 142. A newspaper editorial remarked that: "In some cases, promises of development projects ... were made to throw dust into the people's eyes, only for them to realise later that the State kitty was empty with nothing done." - Ghanaian Times Editorial, Stealing the People's Money, 9 January 1980, p. 2.

27. Government of Ghana, op. cit. (ref. 5), p. 25.

    Improving the quality of statistical data was among the priorities of the new civilian government of 1979. In an interview with West Africa Magazine, the President Dr. Hilla Limann observed that there had been "... serious faults of economic planning in the past. The

entire bureau of statistics needed reform. The necessary data were often not available for proper economic planning." - Matchet's Diary (in Accra), West Africa, No. 3247, 8 October 1979, p. 1838.

28. This was disclosed to the author at an interview with an officer of the Ministry of Economic Planning at Koforidua in April 1979.

29. There are examples of housing estates, hospitals or school premises that remain unoccupied for a year or two due to lack of either water or electricity or both, whilst the same services are provided for other areas during that period.

    At a higher level, the lack of sectoral linkage has resulted in the concentration in the Accra-Tema area (10% of the population) of nearly half of the country's industries, public and private.

30. See Government of Ghana, op. cit. (ref. 18), pp.16 and 22.

31. See later, 9.7.1-4. See also 7.5.1-2.

32. As many civil servants the author spoke to in March-May 1979 opined.

33. The lack of budgetary control and public accountability find manifestation in corruption in high places. The Auditor-General's Report for 1976-79 observed overspending and irregularities in financial administration in most ministries, including the office of the head of State (The Castle, Accra), where there were "... embezzlement of funds, loss of cash, misappropriation of funds and payroll malpractices ... payment of large sums of money to suppliers who ... failed to honour their obligations in full, purchases made at exhorbitant prices ... and large excesses of expenditure over approved rates." - Daily Graphic, Castle Queried, 7 February 1980, p. 1.

34. Government of Ghana, op. cit. (ref. 9), p. 117.

35. Ibid., p. 143.

36. Ibid., p. 145.

37. Government of Ghana, Five Year Development Plan, 1975/76-1979/80, Part II, Accra, 1977, p. 418-

38. Ibid.,p. 420.

39. Ibid., pp. 134-5.

40. Ibid., p. 419.

41. Ministry of Works and Housing, Report of Working Party on Guidelines for a National Housing Policy, Building and Road Research Institute, Kumasi, 1977, p. 76.

42. Ibid., p. 64,

43. For example, Turin (1973) asserts that: "... examination of economic plans ... in more than forty contries at different levels of economic development, reveals the surprisingly limited attention devoted to this important sector of the economy [ie construction] by a majority of countries. In fact, very few of the ... plans consulted, single out the construction industry as one of the economic sectors for which targets are defined and whose relation-

ship with other sectors of the economy is examined in detail." - Turin, D.A., The Construction Industry: Its Economic Significance and Its Role in Development, Part 1, Text 2nd Ed., September 1973, p. 322.

The same point is made by Moavenzadeh, F. in Construction Industry in Developing Countries, World Development, 1978, Vol. 6 No. 1, Pergamon Press, p. 100.

44. Government of the Gold Coast, op. cit. (ref. 4), p. 20.

45. Government of Ghana, op. cit. (ref. 5), pp. 414-5.

CHAPTER 9

PROCEDURES

"What is needed is a thorough reappraisal of performance requirements in terms of local conditions and a drastic change in the ... regulations and standards obstructing construction development. Unstable contractual practices, restrictive and antiquated statutory requirements and cumbersome administrative procedures - especially in the public sector - must and can be removed through concerted national action and well-directed international technical assistance."

- Turin, D.A., The Construction Industry: Its Economic Significance and Its Role in Development, Part 1, Text 2nd Ed., BERU, UCERG, September 1973, p. C14.

"[Ghana has a] weak information and research base for planning, resulting out of lacking resources ... [therefore] questions of planning standards (densities, space ratios, service capacities, etc) have hardly been touched upon ... People's attitude towards density, over-crowding and privacy differ considerably from culture to culture; and even in one culture there may be marked and sometimes subtle differences and variations in such attitudes among different sub-cultures and social classes. Therefore ... account must be taken of the social, cultural and even historical factors that affect social needs of people."

- Ministry of Works and Housing, Report of Working Party on Guidelines for a National Housing Policy, Building and Road Research Institute, Kumasi, pp. 22 and 37.

9.1. Introduction

Most writers on the construction industries of the developing countries paint the picture of industries caught in a web of legal and technical constraints as a result of obsolete and inappropriate documents and practices adopted from more advanced countries[1]. The usual suggestion is that these procedures can and should be changed. (See, for example, 5.3.1.2; 5.4.3.1; 5.4.3.3-4; 5.4.4.1 and tactic (4) in the 'Synthesis' 5.6).

The procedures and documents used in the construction process in Ghana will be discussed in this chapter, especially

- Land Acquisition
- Planning Permission
- Tendering
- Contract Documents and
- Contract Administration.

9.2. The Process and Problems

The formal part of Ghana's construction industry (see 4.4.1) is organised along lines similar to those of Great Britain[2]. (See 3.4). The construction process basically follows the stages of: client's decision to build; acquisition of land; appointment of consultants; designing; application for planning permission; tendering; construction; and maintenance. The participants include clients; planners; architects; land and quantity surveyors; various kinds of engineers; contractors and subcontractors, the duties of each of which are clearly stated in the conditions of contract[3]. As is to be found in many other countries, there are technical difficulties involved in organising any construction project, not the least of which is the inevitable conflict of interests, jealousies and professional snobbism of the participants[4]. (See 3.6.6.).

Everywhere, drawings are insufficient in terms of detail; clients are impatient to see work commence and end on site, not appreciating the nature of the consultants' work; tendering periods are too short to allow contractors to price the bills of quantities accurately; contractors do not receive vital production information on time; and so on. These arise from insufficient executive capacity and the very peculiar characteristics of and arrangements in, the construction process[5]. (See 3.7).

This chapter discusses in detail the procedures and documents listed above as each relates to Ghana. It becomes clear that in addition to the above difficulties, the procedures and documents used in the country have a long history or are caught up in traditional law or central government's machinery and are so deeply embedded, or so complicated in extent, that they cannot be altered successfully in the short or medium term. It is also shown that the multi-disciplinary effort and cooperation, vital to any exercise of radical change, are unlikely to be forthcoming. Moreover, the machinery for enforcing such measures may be difficult to establish.

The weakness of existing machineries is revealed to show that not only will the enforcement of new procedures be difficult, but also that since present provisions are not usually followed they cannot be entirely blamable for the constraints on the efficiency of the industry.

9.3. Land Acquisition

Acquiring a plot of land in Ghana is a hazardous and lengthy process which has frustrated many public and private development schemes. In such a situation the logical proposal would be to attempt to rationalise and simplify the transactions and procedures pertaining to land (see 5.3.1.5, 5.3.2.2 and tactic (4) of 5.6). When the issue is studied in detail, however, it becomes clear that solutions cannot be so simple.

9.3.1. Ownership

Land is held under four categories of ownership in Ghana[6]: (See also 7.61-4)

(a) Private or family land: ancestral land belonging to the whole extended family group or accredited individual representatives;

(b) Stool or skin land[7]; land belonging to the traditional area, vested in the chief;

(c) Stool or skin land vested in the State: traditional land vested in the President on behalf of the Republic; and

(d) Government land: land acquired by government.

Under each system of ownership the procedure for negotiations between the prospective buyer and the rightful owner of the land is different, so is the tenure of ownership.

9.3.2. Transactions

Transactions for the purchase of private land are conducted on behalf of the family by a representative, but has to be approved by all the elders or other members of the family. Land disputes and litigation are most common in this category of ownership. The accredited representative is difficult to identify, and the same plot of land is frequently sold to different individuals or organisations by different members of a family. Where government wishes to acquire land, haggling over who should receive compensation has tended to delay projects.

The chief has the power to lease or sell plots of stool or skin land. The practice differs from one part of the country to another: in certain areas land cannot be sold at all: it can only be leased out.

The vesting of stool or skin land in the state was part of government's effort to ensure even development and to prevent hoarding of valuable urban land. Government does not pay compensation for and does not own all of this category of land, and the purchaser has to negotiate with and "pay" the family or person owning the land before, or in addition to, applying for a government lease.

Government, under present legislation[8], has the power to acquire land in any part of the country subject to the payment of adequate compensation to the rightful owners. It can utilise such lands directly for public projects, or lease it out to private developers (see 7.6.2). Disputes over the value of compensation, which is difficult to determine especially in this period of galloping inflation, or refusal to move for

traditional or emotional reasons have disrupted many a development plan. In several instances persons have had to be forcibly ejected from land purchased by government[9].

These issues were summarised by Abrams (1964):

> "In Ghana, ... Builders, individuals who wanted to build houses, and government agencies that wanted to make mortgage loans all found it difficult to go ahead with their plans because of the uncertainty of titles ...
>
> "Purchasers also encountered trouble over defective or undecipherable conveyances, and over tracts which had been conveyed by two separate ... chiefs, one of whom had no right to sell. Some land was held by so many individuals that it was impossible to find them all."[10]

Obtaining title to land is a complex issue which makes the acquisition of land a major bottleneck in the construction process. (See also 7.6.4).

9.3.3. Rationalisation

The government of Ghana has attempted to reduce the present confusion in matters pertaining to land. It requires that all documents on land should be deposited with the Lands Department (see 7.6.1); all grants of land made under customary law should be registered at the district courts; and all titles to land (including leases signed by the Minister of Lands and Mineral Resources) should be filed with the Registrar of Deeds in Accra[11].

However, not only has this centralised procedure further accentuated the land situation, but the measures have had little impact for a number of reasons:

(a) the Lands Department is bound, under the law, to process and record all land documents[12]. The measures have not reduced the occurrence of different persons registering the same plot, and litigating over it;

(b) there is no means of checking, physically, rightful ownership of

land in the absence of a national cadastral survey system. Survey base maps are obsolete and incomplete[13];

(c) Ghana has no well-developed property market, and specialists like lawyers and estate agents pursuing an active practice in land matters are rare; and

(d) the general public is ignorant of the correct procedures of land acquisition[14].

Under these circumstances, attempts at rationalisation have not been successful. A government committee observed that

> "... the acquisition of land within the present legislative machinery is rather chaotic, time consuming and ... can result in financial losses to those acquiring land."[15]

In August, 1978, government declared its intention of declaring all districts planning areas and hence bringing all land under central control (ie vesting them in the State). But this, if done, is bound to compound the present confusion. The difference in land acquisition practices from one place to another within the country will make the success of such a monolithic system limited. Moreover, the inefficiency which has characterised previous acquisitions of land makes one sceptical about the success of such a large-scale venture.

> "Whilst the occasional land acquisition for public projects is nowhere near the massive expropriation implied in declaring all districts as planning areas, even such minor acquisitions have been unfair in many cases.
>
> "... many of the Government officials entrusted with the job do not do it honestly or properly."[16]

9.3.4. Metaphysical Values

Traditional Ghanaian society considers land the property of the ancestors, the present generation and those unborn. Present occupiers are mere custodians responsible for preserving the land and enhancing its value. Land is not just a factor of production, as the European would see it, but part of the history, culture and religion of the

people. Economics is not allowed to interfere with such values, and a person or persons may seem to behave irrationally by refusing to accept more attractive (to others) alternatives in terms of better accommodation and/or high financial compensation. (See also 1.3.6). This has occurred on several occasions in Ghana: it happened during the Volta River Project, and is evident in the refusal of the inhabitants of the Keta area to move to safer places from their "ancestral land" threatened by the sea[17].

Land policies, therefore, need to consider the non-economic aspirations of the people if they are to have any success. As an editorial warned:

> "There are many things to consider in any measure involving major changes in the land tenure system in the country. The first is to recognise that given the present traditions of land tenure there is no simple way to bring the system under central control."[18]

9.3.5. Conclusion

Matters pertaining to land in Ghana are complex, reflecting history, tradition and culture. No easy approaches to the issue can make any real impact on the situation. Despite the impression given by several writers on the subject (see 9.3), issues pertaining to land in Ghana cannot be approached in a simple, rational way. The availability of land for development will continue to be a constraint in the short and medium term. Realistic solutions can only be evolved through cooperation by traditional rulers, government, lawyers and the people. Land reform cannot be achieved easily and quickly in Ghana, or the cost of land reduced, or land released to prospective developers more smoothly than at present (see 9.3 and 5.3.1.5) until all the factors related to the issue are considered. 'Economic' or autocratic, albeit apparently rational, approaches to such a complex issue are unlikely to succeed.

9.4. Planning Permission

To ensure control in the use of urban land, public safety and sound environmental conditions in urban development, governments have established physical planning and related units[19] to administer regulations, bye-laws and codes. (See 3.6.7).

The planning procedures and building regulations, bye-laws and codes in use in the developing countries are usually described as inappropriate (see 9.1-2 and tactic (4), 5.6). The situation in Ghana, with respect to these, is now considered.

9.4.1. Committees

In Ghana, applications for permission to execute development schemes are made to the district statutory Planning Committees, composed of:

District Chief Executive - Chairman
Regional or District Town Planning Officer - Secretary
An Architect (from the PWD or AESC, or the City Architect)
Regional or District Lands Officer
Regional or District Engineer of PWD or the City Engineer
District Medical Officer of Health, and
Representatives of the Department of Social Welfare and Community Development, and the District Council.

Together with the application, details of the proposed scheme: site layout, design drawings and structural drawings for buildings of two storeys or above are submitted.

9.4.2. The Process

The Town and Country Planning Department has the responsibility of processing the applications, first checking with the Lands Department to ensure that the applicant has registered ownership of the land to be developed. Before the formal meeting of the Planning Committee technical

subcommittees, made up of its professional members, consider the scheme in detail and relate it to existing building regulations and bye-laws.

The planning aspects examined include the zoning and density criteria for the area of the proposed building. Those of design include wind direction, cross ventilation, room heights, daylighting, materials, the topography of the site, and the new building's relationship with its environment.

Schemes passing these tests: about three-quarters of applications,[20] are approved by the award of Development Permits to applicants. Rejected schemes may be resubmitted after the faults which are stated on the drawings by the committee are rectified. The committees sit monthly (fortnightly in Accra) and theoretically, each development scheme should be approved within a month. But the process does not end after this approval.

9.4.3. Building Permit

Development schemes passed by the Planning Committees are submitted to the PWD or City Engineer's Office, who check all electrical wiring and plumbing and any mechanical installations. They also check the design where reinforced concrete work is involved, or where the building is more than one storey tall. Finally, the office of the Ministry of Health inspect drainage, sewerage and other environmental aspects of the scheme.

The PWD then assess the rateable value of the property (a percentage of estimated total cost), and a Building Permit is awarded the applicant by the building inspector at the PWD or City Engineer's, on payment of a determined fee.

The seemingly simple vetting exercise takes a considerable length of time because the PWD or City Engineer's do not have sufficient personnel of the requisite calibre to execute the specialist duties.

(See 7.3.2.1). But the need to safeguard public safety and health makes these checks important. As observed by a government-appointed committee:

> "... the vetting of drawings and calculations takes a very long time, sometimes even more than a year, mainly due to the fact that the process is cumbersome and also that there are not enough trained personnel to do the job ..."[21]

For this reason, designers and clients who can, especially professionals at the AESC and PWD, avoid the inconvenience of applying for planning permission. That they are able to build, anyway, is an indication of the weakness of the enforcing machinery; a point further underlined by widespread 'unauthorised' development throughout the country.

9.4.4. Building Regulations

The building regulations used in Ghana are outdated. Each city or large urban area has such a document, with a recent date of publication[22], which, on closer examination, turns out to be a copy of the one drawn up by expatriate architects of the colonial era. (See 3.4). The regulations are specific about the types of materials to be used, rather than indicating the performance standards required, and have, on occasion, prevented or delayed the utilisation of well-researched materials and components such as landcrete blocks (see 10.5.6). But they are not as restrictive in practice as they appear on paper because:

(a) they are not strictly enforced due to the inability of the officers of the Town and Country Planning Department (see 9.4.5) and Building Inspectors of the local authorities to keep pace with the rapid rate of urban development;

(b) there are no effective alternatives to the materials and procedures they prescribe[23] (see 10.6); and

(c) designers accept them as reasonable: the present regulations do not

conflict with the designers' training background and their personal aspirations (see 11.8.1.1).

Where "unauthorised development" has occurred, they have been in the suburbs and have not involved the formal part of the industry. Furthermore, the building regulations are applicable only in places designated statutory planning areas (see 9.4.5), thus their geographical extent is limited.

Several architects interviewed in Ghana could not pin-point a clause in the regulations that they wanted changed, although one of them criticised the laid down building/plot ratio. Another architect believed that standards should, of necessity, be high to indicate the level to which persons should aspire and yet another warned that just because something was old did not mean it was inappropriate. Thus architects generally supported the status quo. (See Appendix B.2.5).

It would be difficult in operational and executive terms, to formulate separate regulations and bye-laws for each district but it is also no mean task to attempt to draw up a document that would be applicable all over the country, considering the differences in terrain, soil conditions, weather, purchasing power, culture and history of the various peoples.

It is clear that building regulations can only remain guidelines. Their enforcement requires an exercise of judgement and technical pragmatism on the part of planning officers and building inspectors. The operations of the Town and Country PlanningDepartment are now discussed to show the weakness of the planning machinery, the dichotomy between planning and execution, and the limited effect that new planning legislation and building regulations can have unless other changes, which will be difficult in the short- and medium term, are made.

9.4.5. The Town and Country Planning Department

Matters pertaining to physical planning and land use in Ghana are entrusted to the Town and Country Planning Department. It is charged with[24]:

(a) formulating and revising goals, objectives and standards relating to the use and development of land, particularly for towns and cities with high rates of growth;

(b) providing planning services to the public authorities and private developers with the aim of achieving the highest possible measure of health, efficiency and order in the physical environment; and

(c) preparing or revising as well as implementing town and village development plans.

The department is part of the civil service, with a Director as its head; and with branch offices in each of the 60 conurbations designated statutory planning areas.

9.4.5.1. Legislation

The physical planning process in Ghana derives its legal backing from the Town and Country Planning Ordnance, Cap 84 of 1945, and subsequent amendments: the Town and Country Planning Act, 1958 (Act 30), and the Town Planning Amendment Act, 1960 (Act 33). The government admits that:

> "The physical planning system is weakened by obsolete planning legislation and building codes, a defective urban planning machinery, ineffective land management system ..."[25]

The powers available to the planning department under existing legislation are limited[26]; this, and inadequate executive capacity, have reduced the effectiveness of the physical planning machinery. The Land Use Planning Committee will make proposals for a new planning legislation. (See 7.6.4).

The sterility of the Planning Department stems from its lack of

administrative and executive power, lack of prestige and the numerous problems it faces.

9.4.5.2. The Physical Planning Process

As a first step in the planning process, the district planning office prepares a master plan for the statutory area on which it invites comment from specialists or interested parties such as the PWD, Electricity Corporation and the Water and Sewerage Corporation. The plan is then exhibited in conspicuous places in the locality for public view and reaction, after which it is sent to the regional planning office and then the head office of the planning department for its technical implications to be checked. Finally, it is submitted to the Minister for Works and Housing for approval.

Under Cap 84 (see 9.4.5.1), district and area schemes have to be approved by the Minister. This approval of a document prepared, checked and counterchecked by professionals, is not always a foregone conclusion. Some Ministers have insisted on certain changes or have rejected some whole schemes out of hand. This last stage of the physical planning process entails the longest delay. Furthermore, as a committee observed,

> "Plan-making is restrictive in what it embraces and lags far behind the development momentum. Where plans are made, they cannot be more than guide plans."[27]

Plans usually bear little relation to the needs and aspirations of the people and are, therefore, difficult to implement. Planning is almost irrelevant; zoning laws are often ignored, not only by the general public but also government agencies and reputable private organisations.[28]

9.4.5.3. Development Control

Building inspectors at PWD or City Engineers' and planning officers are required by Cap 84 to visit projects to ensure that materials and workmanship are in accordance with the building regulations. (See 9.4.4). Furthermore, no new works are to be occupied except a

certificate of completion has been issued by the inspecting agencies.

These duties call for mobile inspecting teams of requisite qualification and experience but the dearth of vehicles and spares, as well as personnel have reduced the ability of the agencies to perform these important functions[29].

9.4.5.4. Plan Execution

The prestige of the Planning Department is further depressed by the arrangement for executing plans in Ghana.

The Town and Country Planning Department lacks the power and funds to implement its schemes. Many of its plans turn out to be academic.

> "Physical planning at the local level is divorced from execution, central government being the town planning authority and the local authority remaining the principal authority to execute town planning proposals ... Most urban planning schemes are never implemented, because the local planning establishment has no implementation fund (or power to raise one); neither are the planning schemes related to the budgets of local authorities who principally have to implement them."[30]

9.4.5.5. Constraints

On the whole, the Town and Country Planning Department has been weak and as a result,

> "... physical planning in the country has not evolved to a status and strength to operate effectively at national level ... The lack of comprehensive physical planning legislation, as well as the non-existence of a strong, effective organisation at the national level for making physical planning policies, is a major obstacle to the effective execution of government's policy."[31]

The department is not only constrained by inappropriate legislation, but also it is unable to obtain most of its vital inputs. Present survey base maps are inaccurate or outdated, and there is as yet no national cadastral survey system. (See also 9.3.3(b)). The department lacks a strong research and information base: hence it does

not have appropriate standards of densities, space ratios, service capacities and so on.

The planning department used to be the sole employer of graduates and diplomates in planning but it now has to compete for these with a number of public and private organisations. With its low bidding power (being part of the civil service) and paucity of exciting and challenging job opportunities, it is fighting a losing battle. Worse, in recent times experienced personnel of the department have resigned their posts to establish private consultancy firms and are now doing an increasing share of its work.

The department is also starved of office accommodation, equipment and vehicles. Furthermore, its lack of status among the community of organisations in Ghana, stemming from its obvious sterility, hinders the coordination of its activities with those of other bodies involved in various aspects of planning and development.

9.4.6. Conclusion

In Ghana building codes and regulations and planning procedures are effective only in the urban areas, and cover only part of the formal sector of the industry. They are, therefore, not as restrictive or as great a hindrance on construction as they appear at first sight and as writers on construction in developing countries suggest (see 5.6). Changing these regulations is not only difficult, but will not achieve much, considering the weakness of the implementing machinery.

Thus approaches to the question of regulations, bye-laws and codes should not be restricted to calls for their removal or revision (as was the case in most of Chapter 5) but should also consider to what extent new regulations and bye-laws will contribute towards the development of the industry, and how they are to be implemented.

9.5. Contract Documents

(For an introduction to this section see 9.1-2). The documents to be used on a construction project in Ghana are listed in the Conditions of Contract,

On building projects incorporating quantities the documents are: contract drawings, bills of quantities and the conditions of contract. Those without quantities use contract drawings, schedule of rates, basic materials prices and wages list and the conditions of contract. Specifications do not constitute a contract document but main descriptions of standards of materials and workmanship are included in the bills and schedule of rates. The articles of agreement are added to the conditions of contract as a preface.

Roads and civil engineering contracts have the following documents: the tender, acceptance of the tender, articles of agreement, conditions of contract, specifications, drawings, priced bill of quantities and day works schedule, and schedule of rates and prices, if any.

Where external funds are involved additional contract documents may be used, for example, Conditions of Contract (International) FIDIC, on World Bank projects, or the General Conditions for Works on those of the European Development Fund.

9.5.1. Performance Bonds

Performance Bonds are required in Ghana only on projects undertaken by foreign firms, or where the external financing agency insists on them, and also on projects of a special nature or those involving payment of foreign exchange to the contractor.

They are easily obtainable from local banks, and since only large firms are required to acquire them, they do not constrain the operations of many contracting firms, as they do in many developing countries, for example, Swaziland[32].

9.5.2. Drawings

The level of quality and amount of detail in production drawings are a source of irritation and frustration to consultants, apart from designers, and contractors alike in most countries. The observations made in this section on the nature of drawings used on construction projects in Ghana may well apply in any other country, industrialised or developing[33]. (See 3.7. and 9.2).

The involvement of the contractor in the design is still a very rare practice in Ghana; drawings seldom provide sufficient solutions for constructional problems. Most building projects are commenced and completed on the sketchiest of drawings, in some cases two sheets of A1 sized paper with plan(s), two elevations, a section or two, and a few structural details, if any.

To cite only one implication, the quantity surveyor not obtaining on time sufficient information on which to base the bill of quantities, and remaining uncertain of what would actually happen on site, makes allowances to account for the 'unknowns'. The quantities in the bill thus become the result of guesswork.

Discrepancies between architects' and engineers' drawings are common, and the design can be changed, sometimes radically and substantially, at an advanced stage in construction. In several instances projects are begun before the design is finalised. (See also 7.3.5.2-3).

The observations made above indicate areas where conflicts and disputes can arise during construction. Contractors wait long periods for vital information, variation orders are numerous, costs soar, and disputes over settlement of reasonable unit rates for the extra work arise. (See also 8.2.7).

In this context, the contractor needs considerable skills of prediction as well as much tact and patience in addition to technical and managerial expertise.

9.5.3. Specifications

Standard specifications with few modifying clauses are used for most building and all civil engineering projects in Ghana, and they contain descriptions of items of work that may not be part of the proposed works.

Although there is a Ghana Standards Board, it has done little in the field of construction, and specifications continue to refer to British Standard Specifications (BSS) or Codes of Practice (CP). (See 3.4. and 9.2).

Specifications have been conservative for a number of reasons:

(a) the nature of the existing building regulations and bye-laws with which they comply; (See 9.4.4).

(b) clients', including central government, bias towards conventional materials;

(c) the training background of practising designers; (See 11.8.1)

(d) general lack of knowledge about alternative materials. (See also 10.6).

Specifications directly dictate the materials and quality of workmanship, and also go a long way to influence the choice of the method of construction, and ultimately, costs. (See 3.3).

Present specification documents bear scant relation to the country's climatic and economic conditions, and have institutionalised the national overdependence on imported constructional inputs. (See 6.5.3). Government has had cause to complain that:

> "In many instances construction standards have been set too high for the requirements ... and costs have therefore been higher than they could have been."[34]

Yet the factors listed above, governing the nature of specifications used in Ghana, cannot be altered in the short - or medium - term.

9.5.4. Bill of Quantities

There is a general rule of thumb in the construction industry in Ghana that projects costing in excess of £500,000 should incorporate bills of quantities. Because of the haste with which construction is carried out, however, this rule is not always followed: some multi-million cedi projects are awarded on schedules of rates. Bills used in Ghana are usually in the traditional format, a much criticised form considered difficult to price and use and to be wasteful in effort, by experienced surveyors and estimators in Britain and elsewhere[35].

9.5.4.1. Management Aid

Ideally, the contract bill is not only to provide a basis for awarding the contract and for estimating costs, but also to help the contractor in his management of the project[36], specifically to prepare items such as schedule of materials, labour requirements, cash flow statements, construction programmes and production cost control systems. Unfortunately, however, few construction firms in Ghana can price the existing bills, let alone use them as an aid to management. (See 13.5.3). Thus the opportunity a bill should provide for more efficient and economic execution of projects is seldom made use of.

9.5.4.2. New Format

It seems reasonable to suggest that a new bill format that most Ghanaian contractors can understand and use effectively should be formulated. (See 9.1 and tactic (4) of 5.6).

A study conducted by the author (1975)[37] indicated that the most appropriate form of bill of quantities would be one in which quantities were broken up into components of labour, materials and plant (where possible), and the units for materials were the same as obtained on the market. For example, instead of referring to concrete in a column in cubic yards of placed concrete, the quantities of cement, sand and coarse

aggregate would be given separately. Again, as much as possible, the location of the item would be indicated.

It was also found advisable that specifications could be provided as notes on the drawings rather than in voluminous seldom-read documents.

However, any attempt to introduce a new bill format faces obstacles such as:

(a) The Ghana Government Conditions of Contract for Building Works (with quantities) states in Clause 11(1) that bills of quantities shall be measured according to the provisions of the Standard Method of Measurement issued by the British Royal Institute of Chartered Surveyors[38].

This clause should be amended or deleted before any new format can be introduced. Furthermore, an alternative method of measurement[39] should be developed to guide the preparation of the novel form of bills.

The solution cannot be realised in the short or medium term, considering the time it will take to work out the new standard method and bill formats, the sort of opposition to be expected from established surveyors, and the period that participants in the construction process need to acquaint themselves with the new documents.

(b) The scale of fees of the Ghana Institution of Surveyors specifies higher charges if bills other than the traditional format are prepared. Clients would, therefore, have to be convinced to pay more for the surveyor's services if the scheme should work. If that fails, there is the danger that several clients will dispense with surveyors' services, and the practice where designers provide sketchy, yet acceptable (to clients) cost advice will become more widespread.

9.5.5. Schedule of Rates

The schedule of rates is essentially a short version of the traditional bill but without quantities set against the descriptions of the key constructional items.

It is no easier for contractors to use than bills of quantities, and holds the additional danger that it tends to oversimplify issues, appears an easy and ready solution to all pre-contract problems, yet leads to disputes during construction. Nevertheless, it has become an ubiquitous contract document in the search in Ghana for short-cuts in the construction process. (See 7.3.5.3).

9.5.6. Conditions of Contract

Three types of standard forms of conditions of contract are used in Ghana:

(a) Government of Ghana, Articles of Agreement and Conditions of Contract for Building Works (applicable only where quantities form part of the contract). Form A.

(b) Government of Ghana, Articles of Agreement and Conditions of Contract for Building Works (applicable where quantities do not form part of the contract).

(c) Government of Ghana, Articles of Agreement and Conditions of Contract for use in connection with Road Works and Civil Engineering Construction. Form B.

The original editions of these documents were published by pre-independence PWD. They have since been reprinted under a number of "editions" by the AESC and Highway Authority. At present, the PWD and AESC use a 4th Edition of (a) Form A, published in 1966[40], whereas the Highway Authority uses a 1st Edition of the same document, published in 1977[41], both editions similar in content to the original in every respect.

9.5.6.1. Similarity to British Documents

A comparison of the various forms with their British counterparts reveals a remarkable similarity, all the clauses being substantially the same, except in cases where those that do not clearly apply to Ghana, for example those on levies and taxes[42], have been removed, and a few necessary additions made, for example, to indicate that payment would be in local currency[43]. (a) and (b) are, more or less, carbon copies of their equivalents, the Forms of Contract of the Royal Institute of British Architects (1963 Edition) and (c) that of the Conditions of Contract for Civil Engineering Construction issued by the Institute of Civil Engineers of Britain (Edition 9).

The clauses of the British documents present a formidable challenge even to experts in contract law and their interpretations are frequently subjects of dispute[44]. Unfortunately, the Ghanaian documents have not been revised since they were first published, although the British versions have been revised several times. A few private surveying firms in Ghana use (on private projects) the latest edition of the Form of Contract issued by the Joint Contracts Tribunal in Britain[45]. The documents are particularly a problem for the small contractor.

In general, the terms of the contract appear to be aimed at safeguarding the client's interest at the expense of the contractor. The powers of the participants are also not commensurate with their responsibilities: architects or engineers, especially, have very wide powers, although they have no financial liabilities (see also 3.6.6).

9.5.6.2. Consultants

Consultants have often acted in ways which prejudiced the successful execution of the project and resulted in losses to the contractor or client. Although placed in a position of arbitration

between the parties to the contract, consultants have tended to favour the client, being often preoccupied with ensuring that he gets value for his money.

They also, usually, fail to create the atmosphere conducive to smooth project execution, usurping one another's powers[46] or failing to cooperate as the conditions of the contract imply.

Since most contractors in Ghana cannot understand the clauses of the contract, they are at the mercy of the professionals and the attitude of the latter becomes important. On several occasions it behoves the consultant to explain to or remind contractors about some of their rights, especially on matters relating to finance. For example, claims for variations and fluctuations[47]. There is, however, the need for a balance to be struck between, on the one hand, the amount of help a consultant can give to a contractor without arousing suspicions of collusion[48] and, on the other hand, the possibility that, unless the contractor avails himself of all his rights under the contract, he may be unable to complete the project, or may even court bankruptcy.

9.5.6.3. Clients

Most clients, especially government, do not honour their obligations under the contract: payments due to the contractor are delayed, or contracts suddenly suspended or terminated at the client's pleasure. (See 8.3.2-3). The public sector client is so unpredictable that many of the larger, better established firms refuse to tender for its projects.

Government can be said to be in breach of the contract at all times because, having assumed responsibility for the distribution of key materials[49], it has failed to maintain their continued availability[50].

Although remedies are prescribed by the conditions for the contractor in cases of a breach by the client, these have, as yet, not always been made use of because:

(a) most of the affected firms are not aware of their rights; (see 9.5.6.4)

(b) the clauses of the conditions are vague in certain parts. For example, although they specify that if the client interferes with the issuing of a certificate, the contractor may terminate his appointment[51], it is difficult in practice to judge exactly when a client's representative "interferes with or obstructs the issue of any certificate". For instance, when an official does not sign a certificate because he is "too busy" or away on tour, does this amount to "interference"?

(c) government is usually the guilty party, but because many registered contractors rely on it for their work they would be reluctant to assume positions antagonistic to it; and

(d) the ultimate remedy for the contractor is the termination of his contract, but this becomes difficult for firms, which are often job-starved, to effect[52].

9.5.6.4. Contractors

Most construction firms in Ghana are small, and few know their rights and obligations under the contract. It is common for contractors to do extra work on the instruction of persons other than the architect. All too often, contractors consider fluctuation or even variation payments gratuitous or as unearned profit.

Their relative ignorance has given them a feeling of false security or even invincibility. For example, in the present situation of frequent, severe shortages of materials (see Chapter 10) some small contractors continue to accept contracts without fluctuation clauses (in Ghana projects of less than six months duration do not have such clauses) or those with high penalties for delayed completion, whereas the more knowledgeable ones would avoid such contracts. (See 9.5.6.3)

Contractors are often unable to fulfil their part of the contract: many projects are delayed or abandoned[53]. Disputes with consultants and clerks of works over the quality of materials and workmanship are also common.

Rigid enforcement of the remedies at the client's disposal has resulted in several project suspensions and terminations all over the country. The picture therefore emerges of a construction industry largely unable to seek redress for ills done to it but severely and publicly penalised for its faults, many of which are attributable to the environment in which it operates.

9.5.6.5. The Environment

Derived from British experience, the conditions of contract assume a socio-economic environment that does not exist in Ghana. Many of the clauses are academic and impossible to implement. For instance, due to the inefficiency of the postal system, correspondence amongst the parties cannot occur with the expected speed and reliability: the "seven days rule"[54] and other minimum periods set in the documents are difficult to adhere to.

In addition, non-availability of materials and equipment or their high prices, lack of executive capacity and inadequate transport facilities in the client organisations (see 7.5.1-4) all tend to hamper the effective enforcement of the conditions of contract.

9.5.7. Conclusion

The contract documents used in Ghana are of British origin and are considered difficult even by qualified persons. They lead to delays, conflicts and increased costs and tend to frustrate, in particular, the development of small contractors. They appear unsuited to the environment of Ghana's construction industry. It is, however,

not possible for appropriate documents to be developed for the country without much effort, multi-disciplinary cooperation, support from government and other clients, including some sacrifices and much time. In the short and medium term, the problems connected with the contract documents will persist.

9.6. Tendering

(For an introduction to this section see 9.1-2).

All existing forms of tendering have been or are being used in Ghana. The most common are Open, Selective and Negotiated Tendering, but there have also been Serial, Two-Stage, and "Turnkey" Tendering. The method chosen depends upon the type of client, as well as upon the usual criteria of time, size and sophistication, and location of the project.

Central government is usually called upon by writers on construction in developing countries to use its tendering procedure to encourage indigenous contractors[55]. It is, thus, instructive to consider the normal practice of this type of client in Ghana.

9.6.1. Policy

In 1967, government issued a directive[56] that all projects costing more than ¢2,400 should go to tender. Those exceeding ¢300,000 in cost were to be awarded by the Central Tender Board, those costing between ¢16,666 and ¢300,000 were to be handled by the Regional Advisory Tender Committees, and those below ¢16,666 but over ¢2,400 by Departmental Advisory Committees.

9.6.2. Central Tender Board

The Central Tender Board, with headquarters in the Ministry of Finance, is an inter-departmental committee which makes recommendations on the award of contracts to government, through the Minister of Finance.

The members are senior officials of the Ministries of Finance, Economic Planning and Works and Housing, and a few other persons appointed by government.

Professionals of the PWD, AESC, Ghana Highway Authority or any relevant specialised agency, are coopted to advise the board when the need arises,

9.6.3. Regional Tender Committees

On being joined by the Regional Commissioners as Chairmen, the Regional Advisory Tender Committees have become executive. Members include the Regional Administrative Officer, the Regional Economic Planning Officer, the regional heads of the AESC, PWD, Highway Authority and client ministries, and of any specialised agency whose advise may be considered necessary, such as the Electricity Corporation.

9.6.4. Departmental Advisory Tender Committees

Smaller projects are delegated to departmental committees for consideration. These committees make recommendations to the Regional Tender Committees or their chairmen. They may either be formed at the departmental level, ie within the AESC, Highway Authority or Water and Sewerage Corporation, or at the district level, where the members include the District Chief Executive as chairman, District Labour Officer, representative of PWD, coopted officers of AESC or Highway Authority, and a representative of the client department.

9.6.5. Exceptions

The 1967 directive stated reasons that could justify a departure from the laid-down tender procedure. These included:

(a) an urgent need to commence work quickly;

(b) where work is of such a specialised nature that selective or negotiated tendering is advisable; and

(c) where extra works involved in an existing contract are too large to be covered by a variation order and which, for technical reasons, it is desirable that the main contractor should execute.

In all such cases, permission should be sought from government by the client ministry concerned.

9.6.6. Awarding the Contract

The AESC, PWD or Highway Authority or a private consultant for the client ministry, prepares an estimate of the project and, comparing it with the bids submitted, writes a tender report for consideration by the tender board.

Generally, tender figures lying within 10 per cent above or below the estimated cost are those considered for selection. The best tender is decided upon by consensus at the board, with an assessment of the bidders' estimate of the duration of the project, their present work-load and their past reputation. Normally the lowest amongst those considered wins the contract.

9.6.7. Practice

Public sector tendering procedures differ from the laid-down policy. Open tendering plays a less dominant role; selective or negotiated tendering are more important, both as a means of ensuring value for the tax-payers' money and also of encouraging the more promising indigenous contractors.

The importance of geographical location (see 3.6.5) in construction has come to be appreciated by the agencies, and through the award of further contracts in the same locality the more dedicated construction firms are being encouraged to stay in districts within which they are most profitable. Some contracts may also be awarded simply on the basis of an attempt to ensure some equity in the distribution of jobs.

Contractors may obtain work through lobbying. With things being done in a rush, time is always of essence. Few tenders are advertised in the media: most contractors maintain constant contact with the awarding or processing agencies, especially AESC, PWD and Highway Authority.

Tender periods are never long enough for proper estimates to be calculated, with obvious implications at the construction stage. Furthermore, the chairmen of the tender boards have the power to set aside the advice of the other members in choosing the contractor. Finally, since the award of contracts, especially the large ones, is often the subject of media comment and public debate, usually favouring the choice of indigenous contractors[57], the choice of contractors is not based wholly on economic criteria, nor are laid-down provisions usually followed.

The questions of corruption and nepotism are also constantly in the picture. Abrams (1964) wrote:

> "Public works ... in particular, have always provided vast opportunities for pelf and power ... The fine line between the 'contact', 'connection', 'contract' and 'fix' tends to grow fuzzy."[58]

9.6.8. Conclusion

Official arrangements for the award of contracts are often disregarded, not only for convenience but for several unorthodox reasons including corruption. Merely changing formal guidelines on tendering, as implementing the suggestions in chapter 5 (see 5.6 and 9.1-2) would involve, will not alter the way in which contracts are actually awarded in practice in the short or medium term.

9.7. Contract Administration

9.7.1. Introduction

Contract administration in Ghana is characterised by all the

usual inefficiencies that can be found elsewhere, such as: delays on the part of consultants to inspect vital stages of construction, to issue written instructions or to provide important detailed information; alterations in design as clients or designers change their mind; and disagreements amongst the participants (see 3.7). Although all these affect the contractor's operations on the site, the one contract procedure most frequently referred to as frustrating the effort of the contractor in the developing countries is the way in which work is valued, certified and paid for, especially public sector work[59].

This particular procedure has been criticised for its length and complexity, and there have been calls for more rational and simpler systems. (See 9.1-2 and tactic (4), 5.6). Andrews et al (1974) wrote:

> "... contractors ... are paid ... often after a long delay while the cumbersome bureaucratic machinery of government vets every claim on the public purse."[60]

In Ghana, government's payment system has come under fire from individual contractors and the Contractors Association but it has not been radically altered and has even been lengthened in recent years (see 7.3.3). It does not stand on its own but is part of government's budgeting and expenditure-control mechanisms (see 7.5.1). It is necessary to study the process for valuing, certifying and effecting payment for work done to understand what any change in the system would involve.

9.7.2. The Process

The path of a certificate for a typical government contract under the supervision of the AESC is of the following nature:

(1) Construction firms who can do so present a claim, and those who cannot invite the regional quantity surveyor of the AESC to undertake a site valuation. Officially the period for interim valuation is monthly[61] but due to the AESC's limited executive capacity and the present slow pace of construction in Ghana, engendered by the

frequent shortages of materials as well as a stipulation in the contract of a minimum value of interim certificates, the period has become lengthened and variable.

(2) The certificate, prepared by the surveyor, is signed by the project architect and the Regional Consultant of AESC, and by the regional head of the client department or ministry who officially applies for the release of funds. This application and the certificate are then attached to a progress report (which gives an indication of the percentages of the main elements of the works that have been completed) and sent to the Regional Economic Planning Officer.

(3) The Economic Planning Officer, or his representative, visits the site to ascertain the validity of the progress report as well as record the stage of work, as part of the office's project implementation and monitoring duties. (See 7.5.2.1).

(4) The certificate, progress report and the economic planning officer's note are then endorsed by the Regional Administrative Officer and the Regional Commissioner, and sent to Accra.

(5) In Accra the documents are processed by the head office of the client Ministry, from whose budgetary allocation funds will be drawn to pay for the project, and forwarded to the Ministry of Finance.

(6) At Finance the first step is a check to see if the project is included in the annual estimates. (See 5.3.2-3). Then the documents pass through progressively more senior persons: from the Scheduling Officer to an Assistant Secretary, to a Principal Assistant Secretary to the Director of Budget, the Principal Secretary, until it reaches the Minister who signs a warrant attached to the certificate. This constitutes an authority to release the stated amount of public funds. (See 7.5.1).

(7) The papers go back to the head office of the client ministry for

further administrative processing, and then to its regional office where payment vouchers are prepared. The Regional Administrative Officer signs the "financial encumbrance", with which the contractor can collect from the regional treasury a cheque to the value of the certificate. (See Fig. 9.1 for a diagrammatic representation of the process).

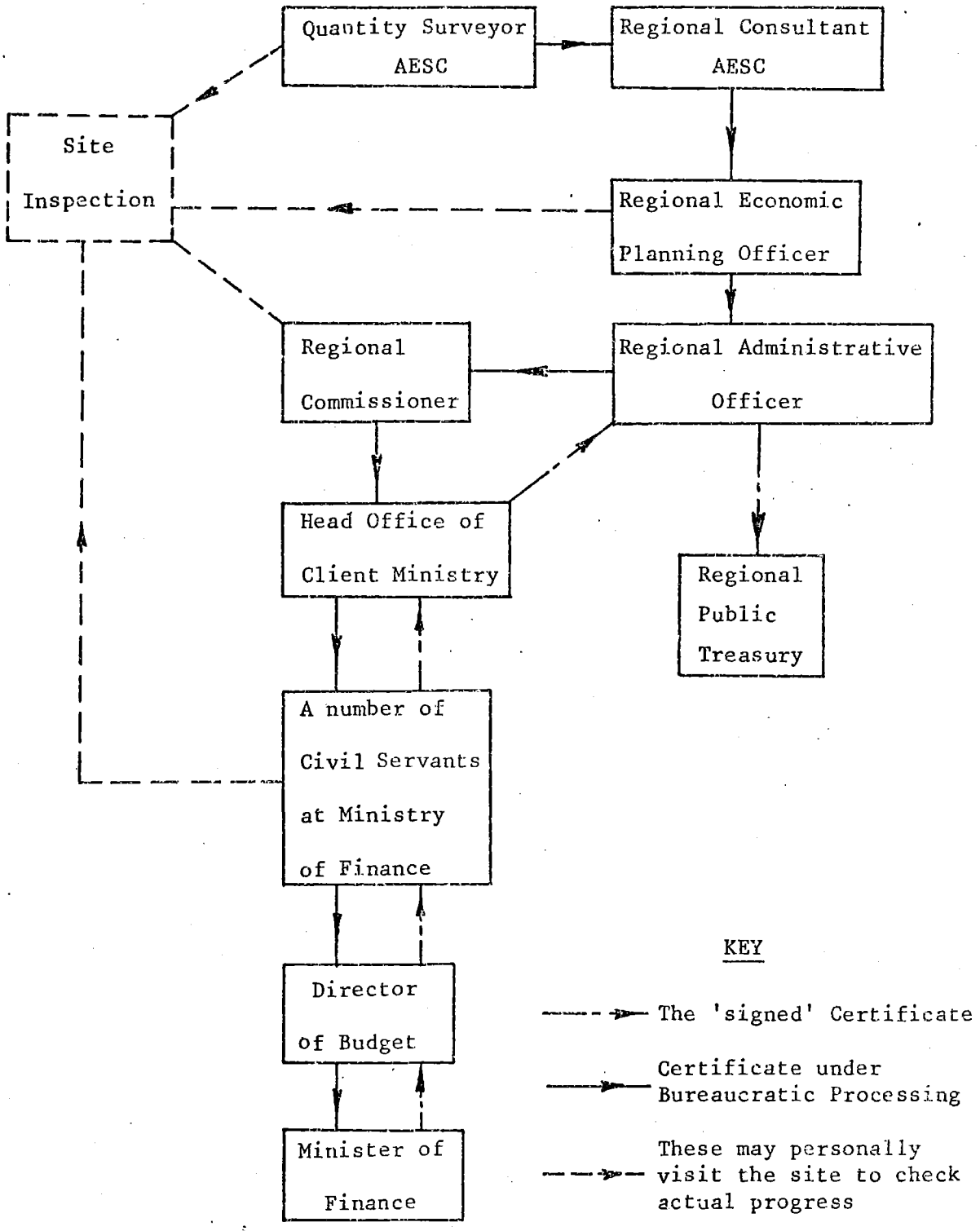
The situation is considerably more complex than outlined: each signatory attempts to ensure the veracity of the claim on the public exchequer and may adopt any appropriate measures. The process, therefore, shows variations from region to region, from one client Ministry to another, or even from one incumbent officer to the next. Moreover, the steps do not follow one another as smoothly and expeditiously as they seem on paper. Long delays may occur at any stage as signatories attend to other duties. Officials are often reluctant to delegate what they consider a sensitive duty to their subordinates. Stages (3) and (6) are crucial: the checking and monitoring exercises may result in the value of the certificate or the status of the project (ie planned or unplanned) being questioned and the documents returned to the AESC for revaluation, or completely rejected (in case of work not listed in the estimates). (See 8.3.2).

The process is the same where a private consultant is involved and also similar for the PWD and the Highway Authority, except that in their case the client is central government and the head offices of the PWD and GHA replace that of the client Ministry, and their Chief Accountants vet the certificates and apply for the release of funds.

9.7.3. Effect on Contractors and Others

The certification and payment process is cumbersome and highly centralised. The poor postal system and the unreliability of the civil service's record-keeping system (some certificates have been lost) have made it imperative that contractors or their representative personally

FIGURE 9.1. The Path of a Typical Certificate Issued to a Contractor on a Project Administered by the AESC



carry the certificate from one stage to the other, and also ensure that at each stage their personal influence minimises delay. This involves the contractor in direct costs such as time lost chasing the certificates,

as well as travelling costs and hotel bills. Moreover, the involvement of a large number of persons in the process and the personal contact the contractor has with them increases the incidence of corruption[62], especially as most of the officers have little knowledge of the construction process and view all payments made to the contractors as profits or consider contractors well to do because of the ostentatious way of life of many Ghanaian contractors. (See 13.8.3).

The actual length of the process depends on the personal influence of the contractor. Certificates may be held up at any stage, and especially at the office of the Minister of Finance when government's funds run out prematurely. (See 8.2.7). The period just before the end of the fiscal year in July is very critical. Payments may be delayed for up to three months after certification, putting contractors under enormous strain, especially since many of them are starved of working capital and rely on interim payments to order essential materials and pay their wage bills. (See 13.6.1-3).

Needless to say, the client also suffers because, when payments are not forthcoming, contractors suspend work on their on-going projects, making them more expensive in the long run in the atmosphere of high inflation, not to mention the lost opportunity of using the completed work.

Consultants, including the AESC, also experience delays in the payment of fees due to them: the process for such payments is similar to that for contractors. On occasion it has become apparent that adequate provision is not made in the budget for consultancy fees. (See 8.3.3).

9.7.4. Justification

The nation's planning and budgeting systems are to ensure a balanced development all over the country. (See 8.2). The Regional

Commissioners have no control over public funds, drawings on which only the Ministry of Finance can authorise. (See 7.5.1).

The length of the payment process and numbers of people involved in it are considered necessary as a means of building accountability into the system through the several checks and counter-checks. Whereas contractors and their association see the process as too bureaucratic, civil servants tend to defend it[63]. Government seems to side with the latter, and in a recent attempt to check corruption and collusion amongst contractors, consultants and officials, introduced steps (3) and (4) in the process[64]. (See 9.7.2).

9.7.5. Conclusion

Ghana's construction industry appears destined to be required to contend with a long and centrally-controlled payment system for public projects in the near future. Government and its officials tend to favour present arrangements[65]. In the long term it will be necessary to formulate new procedures that satisfy government's desire to obtain value for its money by ensuring accountability and contractors' wish to be paid expeditiously for the work they do. It is important to remember that any change in the present procedures will be possible only after alterations in government's policy relating to the control of public funds. (See 7.5.1 and 9.7.4).

9.8. Notes and References

1. Turin, for example, observes that "Inadequate contractual relationships are among the obstacles to a better use of resources in the construction industries in developing countries." - Turin, D.A., The Construction Industry: Its Economic Significance and Its Role in Development, Part 1, Text 2nd Edition, BERU, UCERG, September 1973, p. C11.

2. See, for example, National Economic Development Office, The Public Client and the Construction Industries, HMSO, 1975; and Stone, P.A., Building Economy: Design, Production and Organisation: A Synoptic View, 2nd Edition, Pergamon, Oxford, 1976, for a discussion of the organisation of the British Industry.

3. See later in this chapter for a detailed consideration of contract documents.

4. See Chapter 3, particularly sections 3.6.6 and 3.7.

5. Ibid.

6. Government of Ghana: An Official Handbook 1976, Information Services Department, Accra, 1977, p. 194.

7. "Stool" (in the south) and "skin" (north) are words denoting the symbols of chieftaincy as "throne" would denote that of a "kingdom" in Europe.

8. Statutes governing land use in Ghana are:
   (a) The Administration of Lands Act (1962) regulating the control and administration of stool lands.
   (b) The State Lands Act (1962) which empowers government to acquire land in any part of the country for public purposes on payment of compensation
   (c) The Conveyancing Decree (1973) which specifies that grants of land or interests in land made under customary law should be recorded at the district courts of law.

9. As happened, for example, during the redevelopment of the centre of Koforidua township in 1974.

10. Abrams, C., Housing in the Modern World, Faber and Faber, London, 1964, p. 58.

11. See reference 8 above for legislation concerning land in Ghana.

12. This was told the author by a Lands Officer at Koforidua in May 1979.

13. Ministry of Works and Housing, Report of the Working Party on Guidelines for a National Housing Policy, BRRI, Kumasi, 1977, p. 57.

14. As laid down by the law. The legal machinery is itself ineffective. Hence, in spite of the attempts at rationalisation, "Land tenure practices vary from community to community, from clan to clan, and even from family to family." - The Ghanaian Times, Leave the Lands Alone, Editorial, 29 August 1978, p. 2.

15. Ministry of Works and Housing, op. cit. (ref. 13), p. 57.

16. The Ghanaian Times, op. cit. (ref. 14), p. 2.

17. For example, in the case of Keta, the town has "... for a long time, suffered severely from sea erosion which attacks the heart of the town and destroys a great number of houses. Some of the affected people have left the town and settled in neighbouring villages. However, others, determined to remain on their ancestral land have rebuilt on the lagoon bank which ... is prone to flood in periods of heavy rains and ... flooding of the lagoon." - Darko, K., The Angry Sea, in The Consultant (Journal of the AESC), Vol. 2, No. 1, May 1977, p. 9.

    Various attempts (involving different methods) to save the Keta area were made in 1953, 1955, 1957 and 1961, and a current exercise was initiated in 1975.

18. The Ghanaian Times, op. cit. (ref. 14), p. 2.

    Busia (1971) warns that: "In Ashanti conceptions, for example, the real owners of[land] are the ancestors; the living have only the right of use and never the right of permanent alienation by sale ... If account is taken for example, of the religious attitude to land, of the mystical values that come to be associated with it, and the concepts of ownership that derive from it, then it will be recognised that land reform should not be approached in terms of economic returns alone, although these can be powerful incentives to change." - Busia, K.A., Social Attitudes to Agriculture, in Robinson, R. (ed), Developing the Third World: The Experience of the 1960's, Cambridge University Press, Cambridge, 1971, p. 129.

19. See, for example, Abrams, op. cit. (ref. 10), pp. 114-5 for the origin and nature of planning codes and building regulations.

20. According to data obtained from recent annual reports of the regional offices of the Town and Country Planning Department.

21. Ministry of Works and Housing, op. cit. (ref. 13), p. 65.

22. For example, that of Koforidua: Koforidua Municipal Management Committee: Building Bye-Laws, 1972.

23. See Chapter 10 for detailed discussion of some of these issues.

24. Government of Ghana, Ghana: An Official Handbook 1972-73, Accra, 1974.

25. Government of Ghana, Five Year Development Plan 1975/76-1979/80, Accra, 1977, p. 414.

26. Frustrated by the weakness of the Planning Department, the local authorities have instituted their own bye-laws and codes, which, in parts, contravene the provisions of the Ordinance (Cap 84). For example, whereas unauthorised development is punishable under the ordinance by a (small) fine, the authorities have assumed powers to demolish any such structures and to claim from the offender the cost of the exercise.

27. Ministry of Works and Housing, op. cit. (ref. 13), p. 22.

28. The Chairman of the Land Use Planning Committee, Professor E.A. Boateng, referred to "... the free for all approach to the use of land ..." - Gyimah, K., Land Use Committee Sits in Accra, The Ghanaian Times, 5 January 1979, p. 3.

29. Making a submission to the Land Use Planning Committee, the deputy director of Town and Country Planning in Accra, Mr. Yaw Baah, disclosed that there were "... cases where proposed roads could not be constructed because buildings were standing right in the middle of the roads ... building inspectors of the Accra City Council responsible for checking these unauthorised structures seemed not to show any concern." - Ibid, p. 3.

30. Ministry of Works and Housing, op. cit. (ref. 13), p. 22.

31. Ibid., pp. 59-60.

32. In Swaziland contractors are required to obtain performance bonds for their projects, and this is not only expensive but (especially the small indigenous) contractors find it difficult to obtain such bonds from the banks because of their unfavourable reputation.

33. See, for example, Higgin, G. and Jessop, N., Communications in the Building Industry, Tavistock, 1975.

34. Government of Ghana, One Year Development Plan, July 1970-June 1971, Accra, 1970, p. 121.

35. See, for example, Higgin, G. and Jessop, N., op. cit. (ref. 33); and Aqua Group, Precontract Practice for Architects and Quantity Surveyors, 5th Ed., Crosby Lockwood Staples, 1979.

36. See, for example, Seeley, I.H., Building Quantities Explained, S.1. Edition, Macmillan, London, 1972, particularly pp. 6-7 and 266-283 for the characteristics, uses, merits and demerits of the various forms of bills of quantities.

37. As part of the requirements for the degree of B.Sc. (Building Technology) at the University of Science and Technology, Kumasi, Ghana.

    Ofori, G., Ghanaian Works Specifications and Material Scheduling System for Small Buildings, 1975 (unpublished).

38. Government of Ghana, Articles of Agreement and Conditions of Contract for Building Works (where quantities form part of the contract), Clause 11(1), p. 5.

39. The Ghana Institution of Surveyors (GIS) has prepared an abridgement of the standard method, being a list of items (such as planking and strutting and minor labour items) that are deemed to be included in the measured quantities, ie. not measured separately as specified by the British Standard Method. It does not constitute a standard method on its own, and it leaves the difficulties connected with the traditional bill and methods of measurement unaltered. It is not mentioned in current editions of forms of contract and is, strictly speaking, legally inapplicable.

40. Government of Ghana, Articles of Agreement and Conditions of Contract for Building Works (applicable only where quantities form part of the contract), 4th Edition, 1966.

41. Government of Ghana, Articles of Agreement and Conditions of Contract for Building Works (Applicable only where quantities form part of the contract), 1st Edition, Ghana Highway Authority, Accra, 1977.

42. The Royal Institute of British Architects (RIBA). The RIBA Form of Contract: Private Edition with Quantities 1963 Edition (July 1968 Revision), Clause 31.

43. Government of Ghana, op. cit. (ref. 40), clause 25(8), p. 13.

44. Summing up the case of Bickerton v. North-West Regional Hospital Board, Lord Justice Sachs said: "It seems to me lamentable that such a form, used to govern so many and such important activities throughout the country should be so deviously drafted with what in parts can only be a calculated lack of forthright clarity. The time has now come for the whole to be completely redrafted so that laymen-contractors and building owners alike-can understand what are their own duties and obligations ... At present that is not possible." - Duncan Wallace, I.N., Bickerton v. NWRHB (1969), IAER, 977, quoted in Jones, G.P., A New Approach to the Standard Form of Building Contract, Medical and Technical Publishing Company, Oxford, 1972, p. 1.

    See also Hudson's Building and Engineering Contracts, 10th Ed., Sweet and Maxwell, London, 1970.

45. Unlike the practice in Britain where there are different forms of contract for public and private contracts, only one form (drawn up for public projects) is used in Ghana for both categories.

46. For example, the structural engineer may issue instructions direct to the contractor without passing them through the architect (or even informing him) as the terms of the contract require.

    Government of Ghana, op. cit. (ref. 40), Clause 2(1 and 4), p. 3.

47. Some small contractors regard fluctuations (where they are paid to them) as gratuitous. The AESC and GHA have formulated methods of paying extra percentages of the value of work done by contractorseach quarter in lieu of increased costs.

48. Allegations of collusion between consultants and contractors are rife. See, for example, Chapter 7, reference 14.

49. Key constructional materials such as cement, steel and roofing sheets are distributed (rationed) by government agencies.

50. The materials frequently run short for long periods.

51. Government of Ghana, op. cit. (ref. 40), Clause 21(1), p. 9.

52. When the bone of contention is non-payment or delayed payment by the client, it becomes difficult to see how determination by the contractor will make the client pay the money overdue and the cost of the termination of and demobilisation from the works.

53. See later, Chapter 13.

54. Government of Ghana, op. cit. (ref. 40), clause 2(4), p. 3. - "All instructions issued by the Engineer shall be in writing. If any verbal instructions, directions or explanations ... are given

to the Contractor ... upon the works by the Engineer, such instructions, directions or explanations shall be confirmed in writing by the Contractor to the Engineer within seven days, and if not dissented from in writing by the Engineer to the Contractor within a further seven days shall be deemed to be Engineer's instructions."

55. For example, Andrews et. al. (1972) and Turin (September 1973). See 5.4.4.1 and 5.4.3.1.

56. In the form of an official circular.

57. There were comments on the award of the contracts for the new Kaneshie market in Accra (1975) and the Yamoransa to Takoradi road (1977) to expatriate contractors.

58. Abrams, C., op. cit. (ref. 10), p. 79.

59. Andrews, et. al. (1974), p. 9.

60. Ibid., p. 4.

61. This is another example of the non-applicability and superfluity of the conditions of contract.

62. "There appears to be nothing that can be done in this country without a lot of complicated procedure ... It is not only that such a bureaucratic maze encourages corruption, it makes things move too slowly. No wonder officials find it easy to say repeatedly that a particular thing cannot be done in a day or two when you cannot find any tangible reason why it cannot be done in a matter of hours." - Graphic View, Breeding Corruption, Daily Graphic, 4 February 1980, p. 2.

63. These were evident during the interviews (see Appendix B.2.5). Contractors believed that civil servants were defensive of the system because of the opportunity it gave them (the officials) to build their own small 'empires', whereas the officials thought contractors wished to have the process shortened to make it easier for them to influence or corrupt civil servants.

64. Government of Ghana, Budget Statement for Fiscal Year 1978-79, Ministry of Finance, September 1978, pp. 16 and 24.

65. A Regional Commissioner (in late 1978) called for the formation of district inspection teams comprising the District Chief Executive, the District Police Chief, district heads of PWD and AESC, and other person.

Ghanaian Times, Nation Owes this Service, 31 August 1978, p. 4. Supporting this call the newspaper's editorial believed that: "The inefficient work of many contractors ... will continue so long as one or two officials are responsible for certifying progress on the work, because they can - and have been - easily induced to connive at the misconduct of the contractors."

It cannot be said that this was the view of an unsympathetic party to contractors because the paper has, on occasion, showed understanding of and support for the contractor, bringing to light issues like high prices and shortages of materials and delays in payments.

CHAPTER 10

MATERIALS

"Ghana has many materials suited to local manufacture such as baked clay products and wood and precast components of various kinds. The country could produce wood shingles, grass and reed matting for ceilings, bamboo matting for verandahs and fences and other materials. Native lime could be used as a stabiliser and rammed earth techniques could be pursued. Substantial economies could be achieved by importing cement clinker in bulk to be mixed and ground in Ghana."

- Abrams, C., Housing in the Modern World, Faber and Faber, London, 1974, p. 64.

"The building materials that will be developed during the plan period are: brick and tiles, steel products, timber products, lime products, pozzolana, roofing materials, and fittings ... A Committee has been appointed to look into the building materials' problem and to draw up comprehensive programmes for the development of local building materials ... The resources of the financial institutions will be mobilised for the financing of the programmes ... stock will be taken of all research findings with a view to making them available for practical application."

- Government of Ghana, Five-Year Development Plan 1975/76-1979/80, Part II, Accra, 1977, pp. 417-8 and 421.

10.1. Introduction

Most writers on construction in developing countries urge the nations to produce construction materials locally, reduce their reliance on imported materials, and intensify research into the development of alternatives to the conventional materials. (See 5.3.1.1-3; 5.4.3.2 and 5.4.4.2 and tactic (5), 5.6). They also urge governments to propagate local materials, especially by using them on public projects. (See 5.3.2.2 and 5.4.3.3).

This chapter considers the experience of Ghana in the development of building materials industries and shows that (1) Ghana relies on

imported materials like most developing countries, (2) attempts have been made to develop and popularise local alternatives, (3) the establishments which manufacture materials face several difficult problems, (4) local alternatives are still unpopular, usually expensive and not easily available, (5) historical and cultural factors underlie the obvious preference for conventional materials, (6) programmes for developing and propagating local materials need to be devised imaginatively if they are to succeed, and (7) the network for distributing materials is also worth considering.

10.2. Classification

Materials used in Ghana can be broadly classified into two groups:

(a) conventional materials

(b) indigenous materials.

The former group comprises imported or locally manufactured materials of foreign origin and the latter, naturally occurring or traditionally processed materials, or those developed by combining conventional with traditional inputs or technologies.

10.3. Conventional Materials

According to government's own estimates (1975),

> "... about sixty per cent of the building materials are imported every year both directly and indirectly as inputs."[1]

Table 10.1 shows that imports of finished, semi-finished or raw building materials were seldom less than 10 per cent of the total import bill for the period 1965 to 1976. Conventional materials may be subdivided into two groups: imported, and locally-manufactured materials.

TABLE 10.1: Imports by End Use: Construction Materials (1965-76) (¢ 10^3). (At Current Prices)

Material	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Cement	6,603	6,894	4.976	3,993	4,315	5,680	7,116	6,437	8,707	19,259	26,539	22,860
Steel & Structural Manufacture	12,368	8,340	2,914	2,762	3,161	7,216	8,725	4,825	8,902	17,194	31,753	21,274
Roofing Materials	4,870	2,618	2,484	2,218	3,242	2,951	3,951	1,829	3,573	6,927	4,642	6,856
Water Supply Materials	3,213	4,146	1,659	1,776	4,884	3,314	3,573	1,249	1,693	5,620	8,563	5,195
Railway Construction Materials	153	140	771	627	89	130	306	152	284	582	1,798	451
Road Making Materials	345	246	136	297	239	343	372	82	129	120	64	129
Building Materials	5,818	4,740	2,039	1,984	2,548	3,118	3,562	1,943	2,410	5,165	6,896	5,648
Miscellaneous Building Materials	3,450	4,486	2,275	2,924	4,046	4,905	6,798	5,997	8,196	13,989	9,207	11,021
Other Durable Materials	12,519	8,287	12,225	10,709	14,441	13,394	20,863	13,951	19,180	36,200	37,940	40,610
Total Imported Materials for Construction	49,339	39,897	29,479	27,294	36,965	41,051	54,860	36,465	53,075	105,056	127,402	114,044
Total All Imports	272,259	250,649	261,017	314,031	354,491	419,047	443,043	393,292	525,950	943,707	909,296	990,932
Materials for Construction as a Percentage of all Imports	18	16	11	9	10	10	12	9	10	11	14	12

Source: Economic Survey 1969 and 1972-74.

10.3.1. Imported Materials

Construction materials imported in their finished state include bitumen, special types of cement and steel reinforcement, steel sections, and electrical and mechanical installations in buildings such as lifts, fans and workshop and laboratory equipment. Of these, bitumen is the most important with regard to the effect its availability or otherwise has on the construction industry.

10,3.1.1. Bitumen

Ghana's annual requirement of bitumen is estimated at some 2.2 million gallons or 20,000 tonnes. Its importation, however, has not been regular and there have been long periods during which there was practically no bitumen in the country[2].

Plans to establish a bitumen plant to utilise the by-products of the oil refinery at Tema are yet to be implemented[3]. Thus, whereas processed bitumen is imported, the residue of the local refinery is disposed of, creating environmental problems, but even more serious, draining away the opportunity to achieve self-sufficiency in bitumen.

Operationally, the non-availability of bitumen is a major bottleneck in the road development and maintenance programmes. Holding back the laying of the final sealing cover on constructed roads, it involves the contractor in much extra work making good damage caused by the rains or vehicular traffic, and means additional costs to clients and users of the roads.

10.3.1.2. Other Items

Shortages of other imported constructional materials and equipment are common, delaying the completion and use of buildings and works. The uncertainties in the import licensing and control system make it impossible to schedule the ordering of such items. (See 7.7.1 and 8.2.7).

Evidence abounds in Ghana of hospitals, laboratories, workshops and the like which are several years behind schedule, or even if physically finished remaining unoccupied for want of important fittings and equipment, in most cases ordered well ahead of schedule.

Furthermore, where equipment and fittings such as lifts are concerned, once they break down they become difficult to repair since spare parts are not easily available. Thus the items themselves, and the buildings in which they are installed, are used uneconomically.

10.3.2. Locally Manufactured Materials

A variety of conventional materials and components are manufactured in Ghana, including cement, steel reinforcement, aluminium, asbestos and corrugated iron roofing sheets, glass, concrete products, sanitary fittings, plastic pipes and components, electrical fittings, nails and screws and paints.

The enterprises producing these items rely on imported machinery as well as semi-finished or raw material inputs. (See also 6.3. and 6.5.3). Their annual outputs are determined more by the availability of foreign exchange to import equipment, spares or raw materials than by market forces and their installed capacities. As Table 10.2 indicates, most of them operate below capacity. With the outlook for the economy so bleak[4], it is unlikely that this picture

TABLE 10.2. Production by some Building Materials Factories 1972-75.

Division of Ghana Industrial Holding Corporation	Unit	Installed Capacity	1972	1973	1974	1975	Target for 1980
Paints Division	Tons	3,570	1,212	2,341	2,409	1,812	4,000
Metal Industries	Tons	51,000	29,268	47,000	39,000	37,000	50,000
Steelworks	Tons	8,300	2,964	8,398	8,488	2,820	25,000*

* Expansion of installed capacity planned.

Source: Five-Year Plan 1975-80.

will change in the short or medium term.

10.3.2.1. Cement

Cement is the most popular and by far the most important construction material in Ghana. It is manufactured by two joint state-private factories at Tema and Takoradi using imported clinker. The importation of finished ordinary cement is banned, although some quantities are allowed in when shortages, which are frequent, become severe. The shortages have been due to lack of forward planning of the importation of clinker, which, because of the country's precarious economic position since the mid-seventies (see 6.4.5-7), has occurred in bursts as the state of foreign exchange earnings allowed.

The demand for cement is high and rising: it is expected to exceed a million tons by 1980[5]. Under the current development plan, the existing factories intend to increase their capacity to 1.2 million tons, but as Table 10.3 shows, cement production is so dependent upon imports that even if this projected expansion can be realised in time - which is doubtful - the availability of clinker will continue to be the deciding factor in annual outputs. At present, about 500,000 tons of clinker are imported annually[7].

TABLE 10.3. Imports and Domestic Product in Cement Manufacture 1969-74

	Current Prices					¢ million
	1969	1970	1971	1972	1973	1974
Imports	4.3	5.7	7.1	6.4	8.7	19.3
Gross Domestic Product	2.5	1.9	1.4	1.4	1.8	2.0

Source: Economic Survey 1972-74

Imports of cement and clinker alone constituted an average of 25 per cent of all imports of materials during the period 1965-76 as table 10.4 shows, and the trend has been upward in recent years (eg. 1974-76

in Table 10.4). This may be due to the dramatic increases in the unit cost of clinker since 1970 rather than an absolute increase in volume[8].

TABLE 10.4. Imports of Cement Materials versus Total Imported Construction Materials (1965-76) (Current Prices)

¢ million

Year	Cement (¢10^6) Cement (¢10^6)	All Construction Materials (¢10^6)	Cement as a Percentage of all Construction Materials %
1965	6.6	36.8	18
1966	6.9	31.6	22
1967	5.0	17.3	29
1968	4.0	16.6	24
1969	4.3	22.5	19
1970	5.7	27.7	21
1971	7.1	34.4	21
1972	6.4	22.5	28
1973	8.7	33.9	26
1974	19.3	68.9	28
1975	26.5	89.4	30
1976	22.9	73.4	31

Source: Economic Survey, 1969, 1972-74.

The situation will be eased when the tripartite cement project between Ghana, Togo and the Ivory Coast in Lome starts production (in 1980). But Ghana's share of 400,000 tons of clinker per annum from this venture[9] will not satisfy its total needs.

The nation, however, has limestone deposits and feasibility studies are being conducted into the possibility of exploiting these,

especially those at Buikpe-Baka. Considering the shape of the economy (see 6.4.6-7) and the period of gestation of such a project, this can only be considered a long-term solution. Furthermore, the Building and Road Research Institute (BRRI) is working on a method of making cement from limestone with low-level technology in small production units[10].

Meanwhile, the cement-making factories produce below capacity or remain idle for long periods, the material is frequently in short supply, and a rationing system has had to be developed for it. (See 10.7.2.1). The non-availability of cement has been a major constraint on construction output in Ghana. (See 7.7.2.1 for developments in the price of cement).

10.3.2.2. Cement and Concrete Products

Sandcrete blocks, about 1:6 and of standard size 225x450 cm and various thicknesses, hollow or solid, are the most common walling material in Ghana's urban areas. They are produced in small-scale units all over the country using mechanical or manual equipment by construction firms or other enterprises. The difficulties involved in obtaining cement have led to a deterioration in the quality of blocks and increases in prices. Transportation costs, as well as the poor quality of roads (see 10.7.1.2) and the danger of breakage limit each enterprise's (geographical) area of effective operation.

Asbestos cement ceiling boards, corrugated roofing sheets, pipes and fittings are produced in Ghana from imported raw materials by Fulgurit (state-private) and Kettaneh Limited (private), both in Accra. The brittleness of asbestos and the care needed in handling and transporting it have made it less popular than its alternatives, although it is usually cheaper.

Ready-mixed concrete is produced by a company in Accra, a joint venture between the Bank for Housing and Construction and private investors.

Precast Spun Concrete Products Limited, owned by the National Investment Bank and a foreign company, and the privately-owned African Concrete Products Limited, both based in Accra, produce concrete components: lintels, beams, floor elements, large diameter water pipes, electricity distribution poles, and the like, and distribute them all over the country. Spun Concrete Products has plans to establish a second factory in Kumasi.

The state-owned Prefabricated Concrete Products Limited produces elements for their complete house systems[11]. (See 12.4.2).

The difficulties faced by the concrete products factories are the same as those outlined for the sandcrete blocks units.

10.3.2.3. Steel Reinforcement

Mild steel reinforcement rods are produced by the Ghana Industrial Holding Corporation's (GIHOC) Steelworks Division (see 7.7.3.1) and Ferro Fabrick Limited (private), both based at Tema. They use scrap as the basic raw material.

Total domestic requirements of steel reinforcement were estimated at 35,000 tons in 1975 and expected to rise to 60,000 tons in 1980 and 75,000 tons by 1982. Out of these, the two factories could only manage 22,000 tons in 1975[12], and plans to raise the level of production to a total of 45,000 tons under the current development plan, and also to establish a third steel mill in Kumasi, have not got very far. Worse still, the Steelworks Division has been idle for some time now due to the breakdown of its vital plant and its inability to obtain the wherewithal to import replacements and spare parts. (See 7.7.1).

An integrated iron and steel plant to utilise the iron ore deposits at Oppong-Mansi (Western Region) is under construction. It is expected to establish the basis of heavy industry in Ghana. In the long term, therefore, Ghana can produce not only its requirements of

steel but also, with the completion of a new foundry at Takoradi, spare parts and machinery for its industries. The steel project also incorporates the production of blast-furnace slag cement, a building material.

10.3.2.4. Aluminium Roofing Sheets

A subsidiary of GIHOC[13] manufactures aluminium roofing sheets of various sizes, gauges and trough shapes and sizes, using imported sheet aluminium. The aluminium industry in Ghana portrays an ironic picture.

The country has large bauxite deposits at Kibi, Nyinahin and Awaso, in the Eastern, Ashanti and Western Regions respectively. It exports the mineral in bulk form. The giant aluminium smelting factory at Tema: the Volta Aluminium Company VALCO (foreign owned) imports alumina and processes it into ingots for export. The missing links in the chain are a plant to process raw bauxite into alumina and a rolling mill to make sheets out of the ingots.

Government has tried to interest various foreign investors in an integrated aluminium industry at Kibi, and the current development plan reported that negotiations were far advanced and the project would be executed during the plan period[14].

Aluminium is the most popular roofing material in Ghana, as its durability, non-corrosive nature and attractive appearance have become evident[15]. High demand for the material and the non-availability of the imported raw material has often led to shortfalls in supply and an escalation of prices.

10.3.2.5. Other Metal Products

Nails, screws, rivets, bolts and nuts, wires and steel plates and the like are produced by the Metalworks Division of the GIHOC in Accra.

Corrugated iron roofing sheets, locks, hinges and metal gates

and furniture are manufactured by several private enterprises in the Accra-Tema area such as Pan Metal Products Limited and Union Trading Company. But none of these metal products is produced in sufficiently large quantities to meet local demand; some are imported.

10.3.2.6. Ceramic Ware

Clay products such as sanitary fittings and accessories and wall tiles are manufactured at the Saltpond Ceramics Factory (joint state-private) from local kaolinitic deposits. Other small-scale units produce some ceramic or concrete sanitary fittings such as sinks and wash-basins.

Local production falls short of demand and large quantities of ceramic ware have to be imported. Casting certain sanitary fittings like urinals and sinks in concrete in-situ is also becoming popular. The poor quality of locally produced ceramic items is often complained about by users.

10.3.2.7. Paints

The Paints Division of GIHOC at Tema and a number of private enterprises produce oil and emulsion paints from imported raw materials.

In recent times there has been an acute shortage of all kinds of paint in the country as a result of the foreign exchange situation.

10,3.2.8. Miscellaneous Materials

A large number of other construction materials and components such as plastic products, sheet glass, metal-framed glass doors and windows and electrical fittings are produced in Ghana by private enterprises based mainly in the Accra-Tema area. Almost invariably, they use imported raw materials and produce in very small quantities.

10.4. Features of Conventional Building Materials Industries

From the discussion, the main features of industries manufacturing materials for construction are:

(a) their reliance on imported inputs;

(b) their inability to fulfil national requirements due to production below installed capacity;

(c) the delapidation or obsolescence of some plant;

(d) both (b) and (c) are caused by the shortage of foreign exchange, and (a), (b) and (c), together with increasing world prices, result in acute shortages of key materials and the need to ration most of them;

(e) the overconcentration of the production units in the Accra-Tema area and other coastal towns;

(f) lack of linkages between related industries and between industry and local raw materials (resulting directly in (a) and indirectly in (b) and (d).

10.4.1. Relationships

Thus the industries' production are constrained and the operations of the construction industry affected. The logical suggestion seems to be that the effects of the above issues should be minimised: (b) can be relieved if (a), (c) and (d) are removed or alleviated. Points (d)(shortage of foreign exchange) and (f) (lack of linkages) can only be tackled in the long term by improvements in the economy and by the establishment of integrated industries such as for steel and aluminium. These same measures would deal with (c) (obsolescence of plant).

Points (a) and (e) have prompted government to encourage the development and production of indigenous materials using appropriate technology, in units located in the districts. (See 10.5). This would

not only reduce reliance on imports but provide employment, stem the rural-urban drift of the population, and reduce the cost of transporting constructional materials. This is the basic philosophy of the indigenous materials development programme. (A 'growth with equity' approach.) (See 2.4).

10.5. Indigenous Materials

The programme for the development of local materials involves research and studies into propagation, production and utilisation of existing and new materials using locally available inputs and intermediate technology. All phases of the programme are supported by government. The programme was launched, although not formally as a long-term package, in pre-independence days and the development of indigenous materials has been mentioned in every development plan[16]. (See 8.1).

10.5.1. Research Institutions

The three research institutions which study aspects of Ghana's construction industry are[17]:

- the Building and Road Research Institute (BRRI)
- the Department of Housing and Planning Research (DHPR) of the Faculty of Architecture, University of Science and Technology, and
- the Forest Products Research Institute (FPRI).

All three institutes are based on the university campus in Kumasi and are directly financed by government. The oldest is the BRRI, which was established in the 1950's as the West African Building Research Institute in Accra[18].

10.5.1.1. Links

The activities of these institutions have been dominated by research into local building materials and technologies and they have

produced a mine of valuable information which needs correlation and coordination. There is, at present, much duplication of effort and lack of complementarity in their activities because their programmes are not effectively related and controlled. There are clashes of personalities among the heads and a constant struggle for independence and survival among the bodies. Each body, and particularly BRRI and DHPR, believes that the others should be under its control. These have tended to reduce the links amongst the institutes, despite their geographical proximity.

10.5.1.2. Implementation of Results

In addition, their links with the construction and materials manufacturing industries have not been sufficiently strong to allow the wide dissemination and implementation of research findings, an anomaly which government hoped to remove by establishing information centres for:

> "... the organisation of ... exhibitions of models of house-types, samples of buildings materials and equipment, the publication and dissemination of information on house-types, building codes and regulations ... and the collection of data on the present state of the ... construction industry."[19]

However, although one of these centres was to be established in each region during the current plan period 1975-80, none had been set up by 1979.

The approach to the implementation of the results of research into local materials had been ad hoc and half-hearted until the economic situation made it imperative in 1976 for more attention to be paid to the production and use of alternatives to the import-based materials. In that year, government appointed a committee[20] to:

> "... examine critically and submit realistic and practical recommendations on how best and how effectively local building materials can be developed and used extensively in national building programmes."[21]

10.5.2. The Committee on Local Materials

The committee on local building materials reported[22] that materials which could be produced in the short term included cement, lime, pozzolana, clay bricks and tiles, timber and stabilised soil blocks and bricks. In the medium and long term, materials such as iron and steel products, blast furnace slag cement, stone products, secondary timber species and woodwool could be produced.

The technology to be utilised would also be in three stages: a labour-intensive first stage, an intermediate technology stage, and a capital intensive stage after the seventh year. Each stage would require different proportions of finance, technical promotion and political backing for the materials.

Production units should be sited in all the regions to reduce transportation costs, and appropriate technologies should be used wherever possible. (See 10.4). The quality of the materials should be strictly controlled to inspire public confidence, and personnel should be trained in the manufacturing and construction industries.

Government should give active support and encouragement to the programme, and a Building Materials Development Secretariat should be created to oversee its execution.

These are sound proposals addressed to the existing peculiar situation in Ghana. It is early days yet to review their progress but an indication of their chances of success can be obtained by considering a few of the local materials used in Ghana. (See also 8.5-7).

10.5.3. Timber

Ghana is rich in timber resources, and timber is one of the nation's major exports. There are many sawmills and wood-processing plants, most of which use capital intensive methods. The small-scale pit-sawing industry, which used to be significant, is in decline (see table 10.5).

TABLE 10.5: Production of Timber 1965-1974 (Million cubic feet)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Logs:										
Recorded Exports	19.72	16.82	17.66	20.10	24.60	21.22	24.95	33.60	38.48	15.32
Sawmill Intake	33.71	29.48	26.66	26.65	29.10	30.94	29.03	28.14	29.92	30.43
Veneer/Plywood Intake	1.61	1.59	2.39	2.80	2.72	2.68	3.02	4.29	4.49	4.75
Pit-Sawing	1.17	1.17	0.50	0.50	0.50	0.40	0.40	0.30	0.40	0.30
Total Output of Logs	56.21	49.06	47.41	49.05	56.92	55.24	57.40	66.33	73.29	50.80
Sawn Timber:										
Sawmills Recorded Exports	8.11	7.24	6.69	7.60	7.73	8.50	6.56	8.84	8.46	5.97
Local Sales	5.32	3.44	3.02	3.38	3.29	3.32	3.93	4.02	3.79	6.99
Own use by Mills and Mines	1.22	0.88	0.93	0.86	0.82	0.89	0.87	1.67	1.05	0.99
Additions to Stocks	0.67	+1.90	+1.00	-0.24	+0.81	-0.23	+0.63	-2.40	-0.45	+1.90
(b) Pit-Sawing	0.58	0.58	0.25	0.25	0.25	0.20	0.20	0.15	0.20	0.15
Total Output of Sawn Timber	15.90	14.04	11.89	11.83	12.90	12.68	12.19	12.28	13.05	16.00

Source: Economic Survey 1969, 1972-74.

TABLE 10.6: Out-Turn of Veneer and Plywood, 1965-1974 (Million cubic feet)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Veneer:										
Exports	19.80	19.10	5.47	3.12	16.92	14.80	36.42	17.02	144.30	310.11
Local Sales	-	-	0.16	1.16	2.55	0.98	0.84	0.47	4.31	2.85
Own Use	19.10	17.99	19.60	13.56	-	-	-	-	0.06	2.32
Addition to Stocks	+ 1.30	+ 2.76	-	+ 0.88	+ 3.57	- 0.43	- 7.82	+ 6.09	+89.92	+334.80
Total Output of Veneer	40.20	39.85	25.23	18.72	23.04	16.21	29.44	23.58	238.59	650.09
Plywood:										
Exports	459.25	479.34	635.39	730.94	668.53	766.34	909.75	890.86	1,656.67	659.05
Local Sales	221.40	209.00	246.35	222.74	196.35	281.99	474.12	478.76	439.45	446.03
Own Use	11.35	19.82	12.66	24.67	4.25	4.28	8.77	9.20	16.31	75.97
Addition to Stocks	6.59	14.00	53.26	-21.40	+19.82	+52.98	-13.96	273.51	-235.22	904.27
Total Output of Plywood	698.59	722.16	947.66	956.95	888.95	1105.59	1,378.68	1,652.33	1,877.21	2,085.32

Source: Economic Survey 1969, 1972-74.

Wood products manufactured in Ghana include plywood, veneers, particle board, wood blocks and parquet flooring pieces (see tables 10.5 and 10.6). All the major timber enterprises operate below installed capacity because of their inability to obtain spare parts or replacements for their broken-down machinery. They also face shortages of skilled personnel[23].

Despite government's attempts through the Forestry Department and the Timber Marketing Board to propagate them, timber buildings are not popular in Ghana for several reasons:

(a) timber is expensive in Ghana[24]. This is a result of the export orientation of the industry (see tables 10.5 and 10.6) and the concentration on few of the known tree species. Of 200 or more timber species only 30 are now being used;

(b) seasoning techniques and facilities, essential if the material is to be able to withstand the weather, are undeveloped in Ghana: furthermore, necessary seasoning and preservation, especially impregnation, would increase costs;

(c) a timber building calls for attention to detail in design to provide insulation and protection from dampness, termites and fire. Not all designers have the required skills. There is also the need for continued maintenance of the building that few clients would be prepared to undertake;

(d) failure to achieve (b) and (c) has led to a crisis of confidence in the durability and safety of timber as a major building material. This is not helped by the widespread traditional use of firewood for fuel, which psychologically associates fire risks with timber; and

(e) there is a general public apathy towards timber[25], considered inferior to cement-based materials. This is in spite of, and even reinforced by, the decreasing gap between the costs of the two

types of materials: timber is catching up fast.

As a result of these factors, few timber buildings exist in Ghana; these are mainly luxury middle-class dwellings and offices[26], the most well-known being the American Embassy building in Accra.

The Forestry Department is establishing seasoning, preservation and testing depots in the regions[27], and the Forest Products Research Institute is endeavouring to improve the scientific data on the country's tree species[28]. It has, to date, compiled information on some 70 species. Research on the use of timber in building is led by the DHPR, which is trying to develop timber components as alternatives to the more conventional and popular ones.

In March, 1979[29] government banned the export in log form of fourteen of the major timber species to relieve the pressure on the material at home. But this has not reduced prices. Processed timber is still exported, and both logs and wood products are smuggled out of the country. Timber is also wasted: sawn hardwood is used for props where rough poles or bamboos would do, and valuable trees are felled for use as firewood or to make charcoal. Moreover, there is, as yet, no comprehensive programme for the regeneration of the nation's timber resources: present efforts are only symbolic[30].

To sum up, timber can only be a practical alternative to cement-based materials if large quantities of good quality, well-seasoned timber are available[31], if the properties of the material are propagated to allay public fears, if designers improve their knowledge of appropriate timber detailing, and ultimately, if the Ghanaian public becomes more tolerant of the material.

10.5.4. Bricks and Tiles

Hand-moulded clay bricks are a traditional walling material in many parts of Ghana. Burnt bricks were introduced by the early Christian missionaries, but despite the existence of several suitable

clay deposits all over the country, bricks have not been popular in Ghana.

Brick-making factories exist in several parts of the country, owned by government agencies and parastatals[32]. Under the current development plan, at least one major brick and tile factory is to be established in every regional capital[33]. Collectively, the existing factories cannot satisfy the present demand, low as it is.

The factories use capital-intensive methods and face import licensing difficulties in connection with their acquisition of plant and spares. Skilled manpower to manage the production units is also scarce in Ghana.

The effective and widespread use of bricks for construction is hindered by:

(a) the public's ignorance of the material, attractive and durable though it is;

(b) the limited quantity, high cost and low quality of bricks produced at the moment, and the necessity to transport them over long distances because of the limited number of production units; and

(c) the dearth of bricklaying skills in Ghana[34].

Bricks are now most widely used for ornamental and decorative purposes[35]. Efforts to popularise their uses are continuing and courses for bricklayers have been introduced at some of the technical and vocational institutes. (See 11.4). If, and especially when, these efforts are successful, the demand for bricks will rise and the major constraint will remain the non-availability of the material. In addition, the high energy consumption of brick manufacture will, in the face of escalating fuel prices, bring energy-conservation considerations to the fore, unless the industry is able to utilise alternative sources such as industrial or agricultural wastes.

10.5,5. Mud

Mud is a traditional material used for walls, floors and roofs. There is a variety of constructional techniques such as: the Atakpame (unreinforced mud walls built in layers), wattle and daub and mud blocks or bricks, modifications being made to reflect the availability of raw materials, as well as local skills and climates, and the client's purchasing power.

Mud buildings are cheap and involve simple, labour-intensive methods of construction which are amenable to communal or cooperative efforts. (See 4.4.2 and 7.8.3.1). On the other hand, plain mud walls are unattractive, not durable, subject to penetration by rainwater and erosion by stormwater and, unless well constructed, may not be structurally sound. Mud floors need frequent maintenance to prevent wear, and roofs need special treatment to make them watertight. Finally, mud is not permitted as a building material in the statutory planning areas (see 9.4.4): it is used most extensively in the rural areas (the informal sector). (See 4.4).

But even in these places, a movement away from mud is evident. Whereas 87.5 per cent of all dwellings in Ghana were of mud in 1960, this percentage had fallen to 78.0 by 1970[36]. (See 4.4.2.5-6).

Attempts to improve upon and rationalise the use of mud as a building material have been made by the BRRI and the DHPR. They have mainly considered improving the strength, appearance and durability without unduly increasing costs. For example, providing strong concrete and soil-cement foundations, rendering walls and floors with bitumen-sand mixes or very weak mortar (1:12), painting the walls, and providing adequate roof overhangs to keep storm and rainwater from the base of the building and the walls.

The public has, so far, given a cool reception to the well-catalogued rationalised methods of mud construction and completed proto-types[37]. Moreover, skills in mud construction are being lost as

the downward trend in demand continues (see 4.4.2.5-6), although the DHPR is making some effort to impart its improved methods to traditional tradesmen at occasional courses.

10.5.6. Landcrete Blocks

Soil-cement, stabilised soil, earthcrete and landcrete are names applied to blocks made up of laterite and a small proportion of cement (1:20 to 1:30). The material has been the subject of much work by the BRRI and the DHPR, and the latter has developed a manual blockmaking machine, Tek Block Press, producing 80 blocks per hour, and a power-operated version making 250 blocks per hour[38].

Landcrete blocks are more economical in the use of cement and thus much cheaper than sandcrete. But their quality is difficult to control[39]. Technical knowledge about the performance of the material, which is relatively new to Ghana, is inadequate. However, after a successful promotion exercise, it is a very popular constructional material.

The restriction on its use in the statutory planning areas has been lifted after persistent lobbying by the DHPR and BRRI, and it was widely used in the government's low-cost housing programme of the early 1970's. (See Appendix C.3.4). The material is in great demand in the urban areas where it has been used on buildings of 2- and 3-storeys as well as in rural areas.

The greatly-aroused interest, however, has ended in frustration: the privately-owned foundry at Tema, which used to produce the Tek Block Press, cannot obtain sheet metal and cannot meet the demand for the machines, the cost of which has escalated. Thus the non-availability of the material is the one factor hindering its extensive use. The technology of manufacturing and placing is simple and similar to that for sandcrete blocks, which is widely-known.

10.5.7. Lime and Pozzolana

Lime is not used in Ghana except as a painting material. There are, however, large deposits of limestone in Ghana, and although the largest at Nauli has been declared unsuitable for economic exploitation, others at Buikpe-Baka, Bongo-Da and Oterkpolu have been studied by the Geological Survey Department and the BRRI. The latter body is developing a labour-intensive method of producing lime in a simple kiln capable of producing about 2500 tons annually[40]. (See also 10.3.2.1).

Lime is not yet produced in Ghana, and the nation is not realising the potential of a material which can be a substitute for, or an additive to, cement. On the other hand, lime production consumes much energy; this will be a problem for the planned rural lime industries.

Pozzolana is another material whose potential is being lost in Ghana. It is produced from bauxite waste, much of which can be found at Awaso, with more to be available after the commissioning of the Kibi aluminium project. Its most important use in the context of Ghana is as a substitute for clinker in cement manufacture.

10.5.8. Natural Stone

The Marble Division of GIHOC in Accra and a large number of small-scale rural units produce some dimension stone. But it is not widely used as a building material, its utilisation limited to decorative purposes on walls.

Dimension stone is not popular because of its non-availability in any significant quantities, its high cost, the difficulty in transporting and handling it, its inflexibility in use, the need for special skills to place it, and the non-availability of these skills in Ghana.

10.5.9. Chippings

Coarse aggregate is in high demand for building and civil engineering work but, although there are large deposits of suitable stone, out of estimated needs of 428,000 cubic metres per annum, only 191,000 cubic metres are produced[41].

The gap between demand and supply, and the long distances over which the aggregate has to be moved to reach the sites, have pushed its price up. The quarrying capacity is inadequate and, as a report observed, not only is there the need to establish additional quarries, but also the existing ones should be rehabilitated:

> "In all cases the crushing plants are generally in a poor state of repair and with a severe shortage of spare parts the situation continued to deteriorate. It is estimated that most quarries are operating at only 50 per cent of their rated output. A constraint on road construction is that in the remoter areas of the country where improvements are planned there are no existing quarries."[42]

The inadequate quarrying capacity is a bottleneck in the road development programme. The Bank for Housing and Construction and the National Investment Bank have been involved in the development of new quarries[43]. (See also 13.7.2.1.9).

Its hard-wearing character and its ability to maintain an attractive appearance for a long time endeared terrazzo, previously considered a luxury, to many Ghanaian building owners and users. Polished terrazzo floors and washed terrazzo walls are becoming common. However, most terrazzo chippings used in Ghana are imported, although deposits of stone suitable for their production have been identified and studied by the Geological Survey Department.

10.5.10. Thatch

Thatch is the traditional roofing material in certain parts of Ghana. It is, however, not durable, subject to insect attack and can be a fire hazard. The techniques[44] developed in Ghana and elsewhere to

protect the material from these defects have not been effective and long-lasting and are expensive.

In addition, the use of thatch is banned in the statutory planning areas and is almost confined to the rural areas (informal sector). (See 9.4.4). The material is also not easily available in the urban areas where its use is limited to symbolic cultural gestures such as attempts at creating traditional environments on hotel grounds or in museums.

In the rural areas a preference for conventional roofing materials like aluminium and galvanised iron is evident, and thatch (like mud, see 10.5.5) is rapidly fading out. Abrams observed that:

> "In Ghana's Northern Territories (as the Northern and Upper Regions were called), where adobe and thatch have survived the march of time, imported iron roofs have become epidemic."[45] (See also 4.4.2.5-6).

This development is recognised and encouraged by government, which has introduced a Roof Loans Scheme to help the rural folk acquire more durable roof covering materials.

A USAID-sponsored programme to develop a low-cost roofing material from bagasse, natural rubber and phenol resin has involved several institutions and has reached the sample-testing stage[46] but its effective production and use is threatened at present by the non-availability of rubber and resin in Ghana.

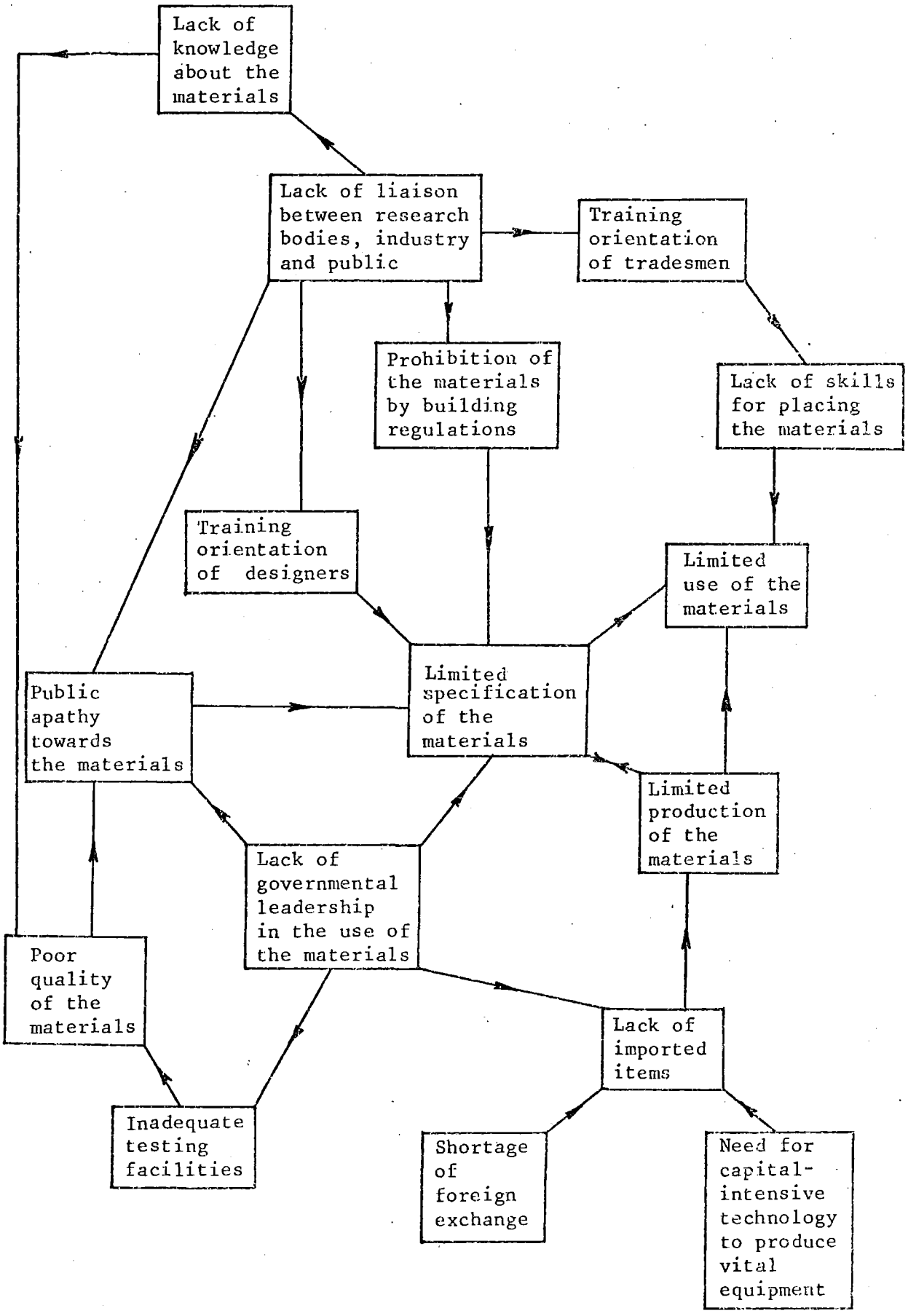
10.6. Problems Facing the Use of Indigenous Materials

From the above discussion, some of the problems facing the identification, development, production and utilisation of indigenous materials are (see also Fig. 10.1):

(a) the apathy of most Ghanaians to many local materials and their preference for conventional materials of proven quality and durability which are considered a mark of progress.

This is the result of the country's colonial past and the process

FIGURE 10.1. Factors Hindering the Effective Use of Indigenous Building Materials in Ghana.



of 'modernisation' during which everything traditional or local was deprecated (see 1.4.4). It is also due to the obvious poor quality and non-durability of some indigenous materials;

(b) the prohibition of the use of most local building materials in the statutory planning areas, due to the conservatism of existing building regulations and bye-laws, and the lack of knowledge about the performance of the materials (see 9.4.4);

(c) the inadequacy of government support. Public sector clients, despite their declared aim to do so, have not given the leadership by insisting on the use of local materials on their projects. Attempts to propagate local materials have been ineffective, limited only to the building of proto-types in isolated places like university campuses, suburban housing estates and some villages;

(d) the lack of impact of research due to the non-availability of research findings for practical implementation, which, in turn, is caused by the poor status of research institutions and poor liaison between these institutions on one hand, and public and industry on the other;

(e) the limited availability of the materials (for example bricks and landcrete blocks), sometimes in the face of high effective demand. Thus the size of the market is not always a constraint;

(f) the orientation, because of their training, of designers towards conventional materials and technologies (see 11.8.1.1) and the present system of basing professional charges on percentages of estimated costs[47], which discourages the specification of cheaper alternatives, together with points (d) and (e) above, hinder the specification of the local materials (see also 9.4.4);

(g) the non-availability of related skills needed to utilise indigenous materials; the present labour force is conversant only with the

technology linked with conventional materials. The necessity to revive or develop skills with each developed material, an expensive, difficult and long exercise, considering the capacity of the research and training institutions (see 11.9.1-2) hinders the introduction of rediscovered or newly developed materials; and

(h) some of the local materials, such as bricks and tiles, call for capital-intensive methods of production, others, such as landcrete blocks, require high technology to produce their machines and tools. This involves the importation of equipment which, without real improvements in the economy, is difficult. Thus, 'intermediate' technology sometimes requires 'high' technology to produce its tools and equipment. (This underscores the need for a comprehensive approach to technology in the long term rather than concentrating on certain levels or sectors. See 5.4.4.5(c) and Chapter 12.)

10.7. Distribution of Materials

10.7.1. Geographical Distribution

Construction activity takes place all over Ghana and, having produced the material, there remains the necessity to convey it to the site, except where it is obtained or produced on site. There is the need, therefore, for effective geographical distribution. Construction materials are bulky by nature and expensive to transport over long distances. If construction costs are to be kept low, then there should be either

(a) widely distributed manufacturing units minimising distances over which materials are moved; or

(b) an efficient nationwide distribution network linking sites with few production units.

Considering the second alternative first, in Ghana materials and components for construction are transported by road and rail, and these two systems are now discussed together with the emerging lake transport

which has much potential.

10.7.1.1. Railway

The railway network in Ghana, developed before independence, is roughly A-shaped and links Accra, Kumasi and Takoradi with the leading mining, timber-producing and agricultural areas (see 1.4.4). It is a total of 950 kilometres. (See Fig. 10.2).

A single track system, the railway has numerous curves which prevent trains from reaching high speeds. Derailments are also common. The locomotives are old and deteriorating, wagon capacity low and decreasing, and railway transportation entails delays which make it expensive. The efficiency of the railway is further constrained by the poor quality of the nation's telecommunication system[48].

Plans for rehabilitating, modernising and extending the network and stock have been on the books for a long time but have not been implemented. Table 10.7 shows that the tonnage of goods conveyed by the railway system is decreasing, albeit erratically, although there has been an increase in the volume of goods requiring movement in the country. For some time now, the railway has been making increasing financial losses, exacerbated by frequent unrest among its militant workers.

TABLE 10.7. Railway Freight Traffic (1968-74)

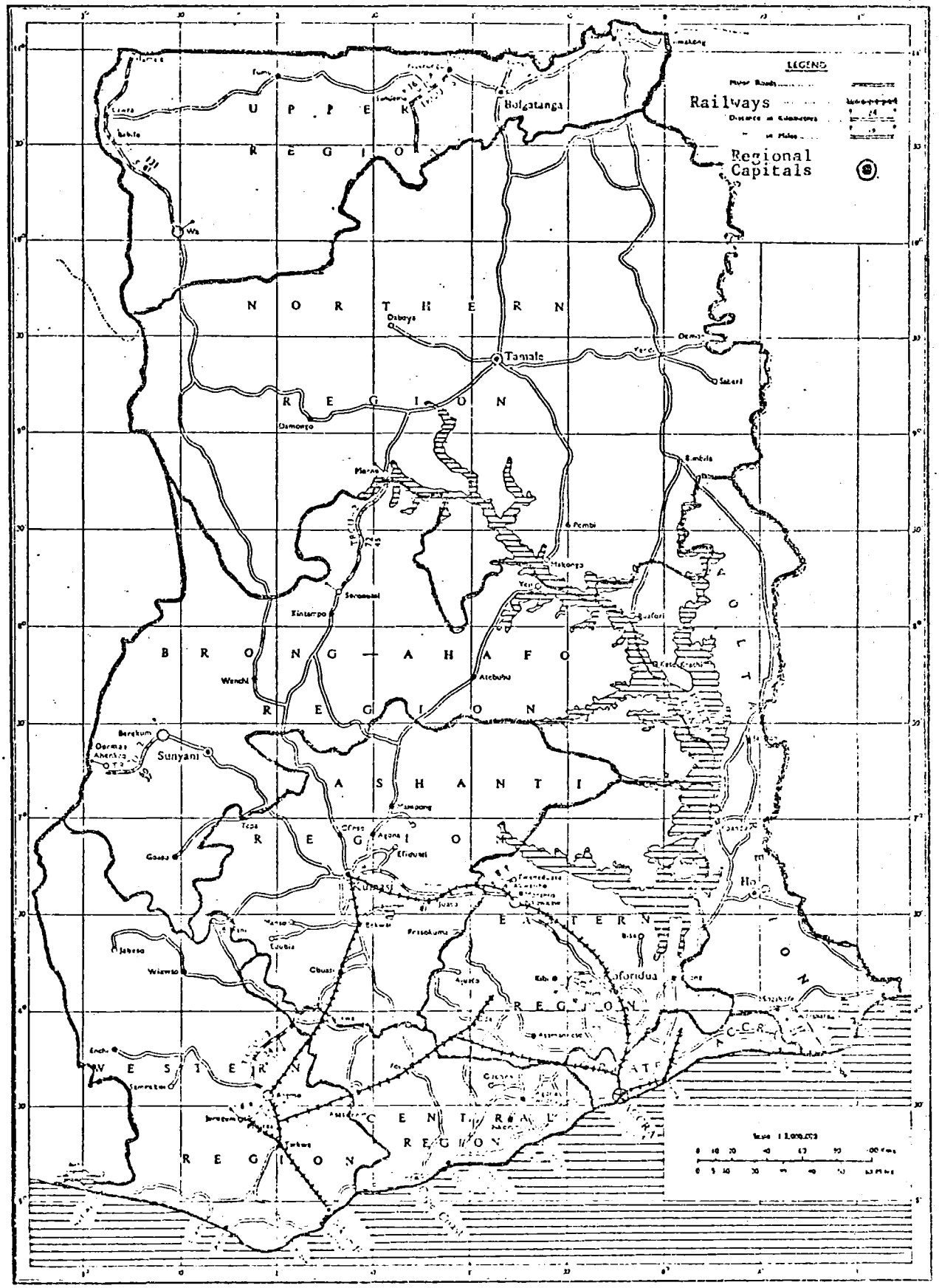
(10^3 tonnes)

	1968	1969	1970	1971	1972	1973	1974
Total Freight	1678	1523	1599	1684	1626	1649	1061
Building Materials	25	44	41	33	23	20	36

Source: Economic Review 1972-74.

Of Ghana's building materials the railway conveys mostly cement

Fig. 10.2. Ghana - Roads and Railways



and timber. It has not been able to compete with road transport.

10.7.1.2. Roads

Most goods in Ghana are transported by road. The network of 32,000 kilometres supports the movement of 4 million tons of goods[49]. But the roads have deteriorated considerably in recent years and are mostly narrow and poorly designed. Shortage of funds and inadequate construction capacity have prevented their improvement and extension. (See 7.2.2).

Haulage capacity is also inadequate, and with the proliferation of vehicle types, (it has been estimated that there are 300 different brands among the 90,000 vehicles registered in Ghana[50]), it has been difficult to acquire adequate stocks of spares. Vehicles are also used beyond their economic lives, and hence with high operational costs.

But almost all construction materials are transported by road, using trucks owned by the contractor or hired[51].

The above factors, therefore, not only make the movement of materials essential to the smooth operations of the construction industry inefficient and unreliable, but coupled with rising costs of fuel, expensive.

10,7.1.3. Lake Transport

The artificial Volta Lake (see Fig. 10.2) has an area of about 780 square kilometres. Transportation on it was expected to be one of major benefits from the Volta Dam Project. The important role that lake transport was to play in the movement of goods between the north and the south of Ghana is yet to take effect.

The infrastructure necessary to support efficient movement on the lake, such as in-shore facilities, navigational and safety aids and maintenance services, are still undeveloped. The state-owned Volta

Lake Transport Company has a small fleet of boats moving passengers and goods between a few towns along the lake. The private sector is yet to warm up to the idea of lake transport as anticipated.

10.7.1.4. Implications

Ghana's inefficient, unreliable and expensive transport system means that, even if sufficient quantities of constructional materials were available, it would still be possible for there to be shortages in certain parts of the country far from the factories or the ports where imported materials are off-loaded. This brings into sharp focus the concentration of almost all of Ghana's factories producing conventional materials along the cost, and leads one to suggest, as did the Committee on Local Materials (see 10.5.2), that production units should be as widely distributed as possible. This corresponds to the first alternative strategy stated in 10.7.1.

But the feasibility of such an approach is doubtful considering Ghana's dire economic situation (see 6.4.6). Apart from this are the usual practical questions of the size of the market, the minimum size of plant for economic production, availability of raw materials, proximity to raw material sources or the ports, and sufficiency of managerial and technical skills to operate the number of plant.

Thus problems of geographical distribution of materials will entail delays, local shortages and high transport costs to the construction industry in the short and medium term.

10.7.2. Sale of Materials

Another facet of the issue of the distribution of constructional materials is the way in which their sale is organised. Until the early 1970's conventional materials were sold by the numerous commercial houses in the country. The shortage of key materials in recent times,

however, has necessitated the adoption of a rationing system for them. The detailed mechanism of this system has changed with time[52].

10.7.2.1. Rationing

Key materials such as cement, steel reinforcement and aluminium roofing sheets are now rationed in Ghana. Allocations are made on a regional basis. Although the Regional Administrative Offices control the distribution, the actual storing and selling of the materials is done by selected commercial houses. They are sold to contractors engaged on public projects, direct labour organisations, registered manufacturers such as blockmakers, and private developers. On projects of a national character or of a high priority, such as the Kpong Hydro-eleetric Project, the Ministry of Works allocates materials directly.

The distribution, which should have been weekly, is often fort-nightly or monthly. The size of regional allocations and hence quantities obtained by organisations and individuals varies with the total available nationally[53]. Public establishments do not enjoy any preferential treatment, and are often worse off. (See 7.7.1).

Because of the laxity of control the materials are usually diverted onto the black market where they sell at exhorbitant rates (see 7.7.2), whilst organisations and persons theoretically 'entitled' to them do not obtain their share. Thus the already insufficient allocations to builders are not always forthcoming. This has led to contractors unilaterally suspending some projects (see 13.5.1) and to long delays on others[54].

10.7.2.2. Builders' Merchants

The organisations which retail constructional materials and tools in Ghana are numerous and mainly small sole-ownerships. The bulk of the trade, however, is handled by the hardware departments of the major commercial houses[55], of which only one, Swiss African Trading

Company, a subsidiary of the United Africa Company, specialises in building materials as such. The smaller retailers obtain their supplies from the major companies. Most constructional materials are among the category of goods whose prices are controlled by government. (See 7.7.2).

Of the greatest significance to the development of the construction industry are the terms under which contractors obtain materials. In Ghana, the normal practice is for the purchaser to pay for items before they are delivered. The larger and more reputable organisations can, however, arrange credit facilities with the merchants. Hence, larger construction firms are more able to stockpile materials to protect themselves from shortages or price rises than smaller ones.

10.7.2.3. Implications

From 10.7.1-2, not only are materials in short supply in Ghana, but also, those that are available are not efficiently distributed, are expensive and are sold under terms which are unfavourable to contractors, especially small ones. These terms will not be easy to change: calling for merchants to advance credits to contractors is not reasonable, since the former are themselves usually starved of working capital. Thus, even if the shortages were relieved, it would still be possible for builders to be unable to obtain sufficient quantities of materials[56].

10.8. Conclusion

Drawing from Ghana's three decades of persistent efforts to achieve self-sufficiency in construction materials, any programme for identifying, developing, promoting and utilising materials should take into account points such as:

10.8.1. Availability of Raw Materials

This applies both to conventional and local materials. In the case of the former, if the raw material is not locally available then it becomes a matter of whether and how much the nation can import, and considering trends in demand, whether it can continue to import it, or attempts should be made to identify alternatives.

With regard to locally available raw materials the considerations are: the amount available, whether efforts can be made to renew or increase the supply, and where the sources are located.

10.8.2. Technology I (Producing the Material)

The technology to be used in processing conventional raw materials and in extracting or processing local raw materials is also worthy of serious consideration. This will be determined by the size and distribution of the supply of raw materials, the level of technical sophistication in the economy, cost of alternative methods, their divisibility or otherwise, the government's policy on technology, what the economy can bear, and the smoothness or otherwise of distribution channels.

10.8.3. Output

The availability of raw materials, the technology employed and the size of the market will determine the output of the industries manufacturing construction materials. Often it becomes a chicken and egg situation, whether to establish a large-capacity industry and hope that with promotional effort demand for the yet-to-be-popular material will rise or to whip up enthusiasm for the material before increasing installed capacity.

10.8,4. Attitudes

The attitudes of the public in general and clients in

particular are also important. Since construction is a real-world activity, the aspirations and perceptions of the people should be considered in choosing materials to develop and utilise. Although promotional efforts can achieve some favourable responses, some ideas rooted in history and culture can hardly be shaken. Thus in Ghana, rather than spend time and expense to popularise timber as a major building material, it might be more worthwhile to support landcrete blocks which are more similar to the popular sandcrete and closer to the people's perception of a progressive material.

Promotional exercises should pay sufficient attention to behavioural traits in persons. Where government pays mere lip service to local materials without using them on any of its projects to a scale commensurate with its professed enthusiasm for them, public's response will be minimal. (Sections 10.8.5-7 develop these arguments further.)

10.8.5. Selection

The mere availability of raw materials does not make it imperative that the materials should be developed and promoted. There is the need for selection, not only on the basis of economic feasibility and technological possibility, but also social acceptability. Thus, in developing indigenous materials, social research is as important as technical research.

10.8.6. Differentiation

It is pretentious and erroneous to adopt a national outlook in the development of local materials. There are differences in the climatic and soil conditions, and the endowment of raw materials in the various parts of Ghana.

Timber as the major building material would be unsuitable in the

north where variations in temperature are extreme and the material is not available. Similarly, there are differences in culture, perceptions, skills and purchasing power amongst the people in various parts of the country.

Thus different materials would be appropriate and more likely to be acceptable in different parts of the country. Taking bricks as an example, burnt clay bricks would be most easily introduced in areas where mud bricks are an indigenous building material.

10.8.7. Categorisation

Taking point 10.8.6 further, but in relation to categories of building types rather than geography, it is clear that on some types of construction projects, especially major buildings and large civil engineering works, conventional materials will continue to be used because of the nature of present design criteria. It is also true that different types of clients and users prefer, or would tolerate, different materials. Thus the middle class would not be averse to or can afford timber buildings. These raise two points:

(1) the attempts to reduce or eliminate the use of conventional materials should be specific in terms of types of projects; and

(2) the promotion of local building materials should identify the types of clients at which various packages should be aimed.

10.8.8. Training

If there is to be a real shift from the use of conventional to the use of indigenous materials, the content, background and outlook of training courses for all kinds of construction personnel should be altered. This calls for the availability of technical data on the characteristics and performance of the indigenous materials and their relationship with conventional materials. It also necessitates the

will amongst lecturers and instructors to depart from existing syllabi and procedures. (See 11.8,1.1).

10.8.9. Technology II (Placing the Material)

Materials can only be placed in the building if the skills needed for such tasks are available. It is sometimes possible to use the same skills (such as blocklaying) for conventional (sandcrete blocks) and local (landcrete blocks) materials. In other instances, introducing a material on a large scale (such as timber) would place considerable strain on the available skills (carpentry and joinery). Finally, certain materials (such as thatch) call for a departure from conventional skills or the resurrection or rationalisation of traditional skills (such as mud building) or the introduction of new skills (such as bricklaying).

Thus, in the materials development programme, there are implications for the corresponding development of appropriate equipment and skills

10.8.10. Distribution

Programmes for materials should also consider ways of ensuring their effective geographical distribution and rational schemes for their retail at reasonable prices and on terms that balance the interests of merchants and buyers.

10.9. Notes and References

1. Government of Ghana, Five Year Development Plan 1975/76-1979/80, Part II, Accra, 1977, p. 411.

2. Such a period occurred between May 1978 and March 1979.

   Ghana Highway Authority, The State of Ghana's Roads, Advertiser's Announcement in the Ghanaian Times, 5 January 1979, p. 10.

3. Government of Ghana, op. cit. (ref. 1), p. 218.

4. See Section 6.4.6.

5. Ministry of Works and Housing, Report of the Committee on the Development and Use of Local Building Materials, BRRI, Kumasi, 1978, p. 51.

6. Ibid., p. 51.

7. Ibid., p. 51.

8. The cost of a ton of clinker is reported to have doubled between 1968 and 1972, even before the fuel crisis and world recession which started in 1973. Ibid, p. 51.

9. Ibid., p. 51.

10. Kesse, G.O., Cement can be Made Cheaper, in Works and Housing Today, Vol. 1, No. 2, August 1978, pp. 26-27.

11. See Chapter 12 for a full discussion of this factory.

12. Ministry of Works and Housing, op. cit. (ref. 5), p. 62.

13. The Aluminium Products Division, at Tema.

14. Government of Ghana, op. cit. (ref. 1), p. 221.

    But these negotiations (first with American and later Japanese investors) must have been unsuccessful since the President, Dr. Limann, told a durbar of chiefs at Koforidua that the government was: "... feverishly negotiating for the exploitation of the huge Kibi bauxite deposits." - Progress Sought on Bauxite, West Africa, No. 3263, 4 February 1980, p. 224. A later edition of the magazine reported that Ghana had signed an agreement with Nigeria for the venture. - Bauxite Agreement with Nigeria, West Africa, No. 3265, 18 February 1980, p. 329.

15. Aluminium has displaced galvanised iron as the most popular roofing material due to the latter's corrosive and non-attractive nature.

16. See 8.4. "Resource Planning" for an account of the history of the development of materials in Ghana.

17. For detailed consideration of the operations of these three institutions see Government of Ghana, An Official Handbook 1976, Information Services Department, Accra, 1977, pp. 304-5, 294 and 295-6; Obeng-Apau, S., Department of Housing and Planning Research. Faculty of Architecture, UST, Kumasi; and BRRI, Note on Building

and Road Research Institute, Council for Scientific and Industrial Research, Kumasi, 1976.

18. This was one of the shared institutions of the countries in British West Africa (Gambia, the Gold Coast, Nigeria and Sierra Leone). Others included a common central bank. These organisations were disbanded in a process which started after Ghana attained independence in 1957, their connotation with colonialism being the main reason for their abhorrence to the self-governing countries. This was strong enough to overrule the obvious advantages of pooled resources and shared experiences. The West African Examinations Council is the only body which survived the balkanisation.

19. Government of Ghana, op. cit. (ref. 1), p. 421.

20. It was composed of professional persons at the Ministries of Works and Housing and Economic Planning, BRRI; Forest Products Research Institute; and Faculty of Architecture, University of Science and Technology.

21. Ministry of Works and Housing, op. cit. (ref. 5), p. (ii).

22. Ibid.

23. Especially plant and equipment mechanics and operators, and factory managers.

24. Government of Ghana, op. cit. (ref. 1), p. 441.

25. Ibid, p. 441.

26. "Ghana timber today ought to be considered a luxury item that must not be toyed with. I would advocate for the use of timber principally on the decorative side of building namely interior panelling, sculpturing, paraquet flooring and as roofing elements." - Kyei, K.G., Here and There in Building Construction and Maintenance, The Consultant, Vol. 3, No. 1, May 1978, AESC, pp.9-10. (Mr. Kyei is a Past President of the Ghana Institute of Architects.)

27. Government of Ghana, op. cit. (ref. 1), p. 442.

28. Ibid., p. 304.

29. This took effect from 31 March 1979. The ban was imposed at the insistence of the Ghana Timber Marketing Board despite vehement protests from the Ghana Timber Association (the union of timber merchants and exporters). See Aggrey, K.A., The Timber Industry in The Ghanaian Times, 1 October 1979.

30. Considering the afforestation exercise of the Forestry Department, an official document noted that: "The gestation period of forest plantation is such that in order for the programme to be effective an annual planting rate of 10,900 hectares would be required to replenish the depleted stock. However, owing to financial constraints, the Department has been planting 128 hectares per annum." - Government of Ghana, Budget Statement for Fiscal Year 1978-79, Ministry of Finance, Accra, September 1978, p. 33.

31. This would involve the resolution of the problem of how much timber to export to earn much-needed foreign exchange and hence, how much is available for local consumption. It would also require an effective remedy to the issue of smuggling.

    Aggrey, op. cit. (ref. 29), reports that the ban on the export of primary species was adversely affecting the operations of saw-millers, although Boakye, R.A., in an earlier article (The Ghanaian Times, 11 July 1979) had written that the ban had checked the uncontrolled exploitation of the country's forest resources and encouraged exports of secondary species.

32. These agencies and parastatals include GIHOC, Bank of Ghana, Bank for Housing and Construction, BRRI, National Investment Bank and some Regional Development Corporations.

33. Government of Ghana, op. cit. (ref. 1), p. 441.

34. "There are ... very few skilled brick layers available for actual construction on site. It is believed, however, that when the production of good quality bricks are available in large quantities for ready supply to building sites more workers would develop interest in its use." - Addy, S.T., Advice on the Use of Local Building Materials, in The Consultant, Vol. 3, No. 1, May 1978, p.6.

35. For example, in arches and decorative fencing.

36. Results of population censuses quoted in Ministry of Works and Housing, op. cit. (ref. 5), p. 12.

37. The DHPR has a manual on rationalised methods of Atakpame construction and standard design forms.

38. Ministry of Works and Housing, op. cit. (ref. 5), p. 31.

39. The soil is used in a damp state, and lumps of unstabilised soil tend to form in the blocks and render them weak .

40. Ministry of Works and Housing, op. cit. (ref. 5), p. 54.

41. Ibid., p. 66.

42. Scott Wilson Kirkpatrick and Partners, Report on the Contracting Industry and Quarry Facilities in Ghana, Ghana Highway Authority, Accra, 1975.

43. Some of these quarries are: Ghana Stone Quarry, Accra and Kas Products Limited, Kumasi (of the Bank for Housing and Corporation), and Esquire/NIB Quarry near Koforidua (of the National Investment Bank).

44. Such as leaching.

45. Abrams, C., Housing in the Modern World, Faber and Faber, London, 1964, p. 63.

    Furthermore, as Tiger (1967) noted, "Unlike some societies in Europe which sought to manage their development and planning programmes by stopping, through censorship, the introduction of alien conceptions of desirable living standards, Ghanaians are widely exposed to foreign life-styles, and are in fact encouraged

to seek parity with wealthier nations." - Tiger, L., Bureaucracy and Urban Symbol Systems, in Miner, H., The City in Modern Africa, Pall Mall Press, London, 1967.

46. Ministry of Works and Housing, op. cit. (ref. 5), p.74.

47. "The escalating cost of building construction stands to the advantage of construction professionals as their fees are based on the final cost of the project." - Ibid., p. 17.

48. Government of Ghana, op. cit. (ref. 1), p. 149.

49. Ibid., p. 132.

50. Ibid., p. 133.

51. Vehicles may be hired from any of the plant hire organisations (see Chapter 12), the State Transport Corporation, Regional Development Corporations and the large number of private concerns owning small fleets. - Ibid., pp. 133-4.

52. "It is impossible to assess correctly the various number of ways that have been devised within the past few years for the distribution of goods. The fact that none of them seems to work and that new methods are always being found are enough demonstration of the basic problem ... goods always seem to be allocated to those who have no direct use for them and these people then turn round and sell them to those who need them at huge profits." - Graphic View, Two Oranges for Five Boys, Daily Graphic, 31 January 1980, p. 2.

53. For example, in April 1979, the allocation for the Eastern Region was 7,000 bags of cement a week (instead of 20,000 bags a few months earlier). In the same period, the daily quota of cement to the State Housing Corporation had fallen from 5,000 to 500 bags.

54. "In the middle of these abandoned projects waiting for cement stand some outstanding ones the sight of which fills the hearts with pain. Of monumental significance ... are the ... Earth Satellite Station ... and the badly needed ... State Housing Corporation buildings in various stages of completion, to name a few." - Graphic View, Cimao: More Clinker, More Cement? Daily Graphic, 11 March 1980.

55. The major trading companies in Ghana are:
    Ghana National Trading Corporation (GNTC),
    United Africa Company (Ghana) Ltd. (UAC),
    Union Trading Company Limited (UTC),
    Compagnie Francaise de L'Afrique Occidentale (CFAO), and
    Paterson Zochonis Ltd. (PZ).
    Of these, GNTC is public owned; the rest are foreign firms incorporated in Ghana under joint private foreign/Ghanaian ownership.

56. After a prolonged period of shortage, bitumen arrived in bulk in the country but contractors were unable to buy it because they could not pay cash for it as demanded by the merchants. - Duah, N., There is More Bitumen ... But Many Road Construction Firms Complain of Cash, Daily Graphic, 26 February 1980, p. 1.

CHAPTER 11

MANPOWER

"In most developing countries there appears to be a need for upgrading the existing professionals and their educational programmes, and ... to educate a greater number of local architects ... engineers ... managers for construction ... [and] better qualified workers in construction ... There is little question that [education and] training in developing countries needs improvement, both in terms of upgrading and expanding existing programmes and of developing new ones."

- Moavenzadeh, F., Construction Industry in Developing Countries, World Development 1978, Vol. 6, No. 1, Pergamon Press, London, pp. 103-4 and 107.

"The Gold Coast [later Ghana] needs skilled men and women of all kinds - agriculturalists, engineers, builders, surveyors, dispensers, nurses, social workers, etc - and there are already schools catering for this need."

- Government of the Gold Coast, Achievement in the Gold Coast, Public Relations Department, Accra, 1951.

11.1. Introduction

The shortage of skills of all types in the construction industries of developing countries is often referred to. Proposals made by writers towards the alleviation of the problem are usually orthodox: the establishment and/or intensification of education and training programmes (see, for example, 5.3.1.1-3, 5.4.3.1 and tactic (6) in the 'Synthesis' 5,6). However, some suggestions have been unusual, such as the use of computers in design and management (see 5.4.3.3).

Ghana has an elaborate infrastructure of educational institutions and organisations, and has had a programme for comprehensive and accelerated development of its human resources since independence (see 6.4.2.3). This chapter will consider Ghana's

experiences in this field in recent times. After looking widely at the manpower situation, it will then 1) show how, despite elaborate planning and much effort, problems remain at all levels of education and training; 2) show how additional constraints have emerged and been tackled; 3) identify some of the determinants of a successful manpower development programme; 4) point out that the problem lies less with quantity of qualified persons but more with the quality of training and intra-organisational factors, as well as the relationships between different organisations; 5) that training should be matched with reasonable levels of wages and salaries; and 6) that attitudes to training are important.

11.2. The Manpower Situation

Ghana's current manpower problems were outlined in the 1975-80 Plan as:

> "Growing unemployment particularly in the urban areas ...; widespread underemployment ...; critical and crucial shortages of strategic skills at all levels, professional, managerial, technical and ... skilled manpower; inadequacy of training, paucity of qualified instructors and physical facilities for practical training; low productivity and under-utilisation among certain segments of the labour force."[1]

Particularly serious was the shortage of technicians and middle-level personnel, which made it necessary for professionals to attend to several simple and mundane tasks. Moreover, certain skills existed in excess at the same time as there were severe shortages in others. In construction, the plan's authors observed that:

> "The limited data that are available on the number and distribution of construction workers indicate that there is a shortage, particularly of middle-level artisans and technicians ..."[2]

Totals of categories of skilled personnel employed in the industry, projected needs and total out-turn over the planned period are indicated in Table 11.1. It is clear that, in all the categories, shortages of

skilled personnel were expected. Ghana, however, has a long history of manpower development, and the construction industry has not been ignored in the educational and training programmes initiated and implemented over the years. The country has an elaborate system for planning manpower needs and putting into operation the schemes to realise them. Education and training for construction occurs at both the formal and informal levels. The machinery for assessing manpower needs is now considered.

TABLE 11.1. Manpower Situtation in Technician and Professional Grades in the Construction Industry

(Number)

Category	Total Employed 1975	Projected Employment 1980	Estimated Output 1975-80	Shortages and Surpluses
Civil Engineers	508	761	100	-153
Mechanical Engineers	566	920	100	-254
Electrical Engineers	291	516	100	-125
Architects and Planners	422	1049	200	-427
Surveyors	640	1623	200	-783
Civil Engineering Technicians	1182	1772	60	-530
Electrical Engineering Technicians	1111	1863	711	- 41
Mechanical Engineering Technicians	1403	2281	805	- 73

Source: Five Year Plan 1975-80.

11.3. The Manpower Board

The Manpower Board is a division of the Ministry of Economic Planning charged with[3]:

(a) formulating plans and policies for the development of national

education and training schemes;

(b) initiating policies, plans and programmes for periodic assessment of the manpower supply situation and requirements; and

(c) coordinating the functions and activities of all agencies involved in the development and utilisation of the country's human requirements.

The main objective of the Board is to achieve maximum and efficient utilisation of Ghana's human resources and training facilities[4], the avoidance of wastes of skills, accurate placement of training personnel, and ultimately creating a mobile and dynamic labour force capable of adapting to occupational shifts, technological changes and industrial growth.

The Manpower Board periodically studies on its own initiative or on government's instruction specific areas of the labour force. It assesses needs, relates these to educational or training facilities or programmes, and advises government which, in turn, directs the institutions concerned accordingly.

11.3.1. Effectiveness

The nature of the Board's work demands a very smooth liaison with industry and educational and training institutes, but this has not been the case. In a recent study on the manpower situation in the construction industry[5], for example, less than 30 per cent of the questionnaires sent out were duly completed and returned. This lack of liaison has reduced the Board's effectiveness and resulted in disparities in the country's manpower structure, as programmes and activities of training institutes are not coordinated and duplication in certain sectors of training exists with inadequacy in others.

11.3.2. Report on Construction

The Board, in the study referred to above (11.3.1), observed in 1977 that in Ghana's construction industry there were[6]:

(a) shortages at all levels, especially at the top managerial and middle technician levels;

(b) high net loss of skilled personnel due to migration to neighbouring countries and movement out of the industry, caused by inadequate remunerations and insecurity of tenure of employment; and

(c) inadequacy of training facilities for the construction sector.

It is, therefore, most probable that the levels of employment indicated in table 11.1 could not be maintained and that the shortfalls between needs and available numbers are even greater.

The Board also found that in both consulting and contracting firms the shortage of personnel was accentuated by a trend, in the light of high inflation and inadequate wages and salaries, towards self-employment. In particular, skilled tradesmen were organising themselves into labour sub-contractors and working, sometimes for their former employers, on lump sum bases[7]. There was also a tendency for workers to move from smaller to larger establishments where employment was more secure and conditions better.

11.4. Tradesmen

The formal training of Ghanaians in construction trades was started by the early Christian missionaries. There are at present a large number of vocational and technical institutes all over the country for the training of construction operatives, run by the Ministry of Education, the National Vocational Training Institute (NVTI), other government agencies, and philantropic, benevolent or voluntary organisations. Some of these are:

(a) the Polytechnics and Technical Institutes (at least one in each region) and the multitude of Continuation Schools, run by the

Ministry of Education (see 7.8.1);

(b) the Pilot Training Centre in Accra, the Tamale Training Centre and the Accra Construction Machinery Centre of the NVTI (see 11.5);

(c) the Ministry of Social Welfare and Community Development's Vocational Training Centres and its training programmes in the borstal institutions, the joint Ghana/Canada Technical Training Centres in Accra and Kumasi and the joint Ghana/West German Vocational and Rehabilitation Training Centre at Biriwa (Central Region); and

(d) Opportunities Industrialisation Centre, Accra, run by a joint Ghanaian/American philantropic body, the Young Men's Christian Association's Training Centre in Accra, and those of the churches, such as the Nandom Catholic Practical Vocational Training Institute.

In addition to these, there are on-the-job apprenticeship schemes organised by contracting and direct-labour organisations.

11.4.1. Constraints

The training of tradesmen in Ghana is hampered by problems such as: inadequate facilities in terms of classroom and residential accommodation and equipment, shortage of teachers and insufficiency of funds. There is also a lack of effective coordination amongst the institutions, resulting in both the duplication of effort in training certain categories of skills and the neglect of some categories which has culminated in the existence of some skills in surplus at the same time as there is an acute shortage of some skills[8].

Until the late 1970's there used to be a preference among Ghanaians for white-collar jobs, a trait which tended to limit entrance into the building trades both in terms of numbers and quality of the personnel; persons entered the trades only as a last resort[9]. This trend is reducing as a result of: emphasis on practical training in primary education[10] (see 7.8.1), the evident shortage of clerical job

opportunities, increasing urban unemployment (see 6.3), and the relatively more lucrative prospects of the trades at present.

11.4.2. Support Services

Some technical and vocational institutes go beyond formal education to provide other services for the welfare of their graduates. For example, some benevolent societies and the Ministry of Labour, Social Welfare and Cooperatives organise trainees into cooperative groups, providing them with essential tools on loan and helping them to obtain contracts. Again, the Biriwa centre (see 11.4) insists on negotiating, on behalf of its graduates, salaries and conditions of service, especially security of employment.

11.4.3. Apprenticeships

Considering the inability of formal training to provide the country's needs of skilled personnel, it seems wise to suggest that greater use be made of apprenticeships. In fact, most of the country's tradesmen were trained in this way, their illiteracy or semi-literacy dictating the use of touch-and-feel methods of instruction. However, not only will the scope of the exercise be limited by the number of organisations willing and able to provide it, but also, unless it is well-organised, there is the danger of its resulting in a situation of the blind leading the blind, with mistakes passed on from one generation of tradesmen to another.

11.5. The National Vocational Training Institute (NVTI)

The National Vocational Training Institute (NVTI) was established in 1969 by the government of Ghana and the United Nations Development Programme (UNDP). It is charged with coordinating all industrial and vocational training programmes and activities in the country to ensure

the availability in adequate numbers of skilled personnel in the industrial and clerical fields. Its duties include[11]:

(a) studying the country's skilled manpower requirements in relation to its expanding economy;

(b) drawing up suitable training programmes to provide these needs;

(c) organising apprenticeships and in-plant training; and

(d) setting training standards and conducting trade tests.

The NVTI does not run training courses itself: it regulates and supervises such courses at various institutions. However, it has a Pilot Training Centre in Accra and plans to establish one each in the regions.

It has developed training syllabi and standards for building trades such as carpentry, masonry, electrical installation, plumbing and construction equipment maintenance. But its power over the training centres is limited. The different institutes, obtaining finance from various different sources, are operationally independent.

The NVTI requires that the trainees it is directly involved with are sponsored by their employers for the duration of their courses. This limits its scale of operations. Table 11.2 presents figures of all apprentices trained by the NVTI in 1975-78.

TABLE 11.2. Trained Personnel through Apprenticeship with the National Vocational Training Institute (1975-78)

Year	1975	1976	1977	1978
Number Trained	1120	1799	1800	2000

11.6. Technicians

Most of the artisans working as foremen and supervisors in Ghana's construction industry are tradesmen who were promoted after long, dedicated service. Similarly, several draughtsmen and building and

engineering technicians have had no formal training at all: they acquired their skills through apprenticeship schemes.

Formal training of construction technicians takes place at the Technical Institutes, of which there is one in each regional capital, and at the Polytechnics in Accra, Kumasi, Takoradi, Ho and Tamale. The Technical Institutes run certificate courses whose entrants are from the primary and secondary schools. The Polytechnics run diploma courses up to the equivalent of City and Guilds Ordinary Technicians Diploma for the products of the technical institutes and secondary schools (see Figure 11.1). The training centre of the PWD in Accra is Ghana's most important source of construction draughtsmen.

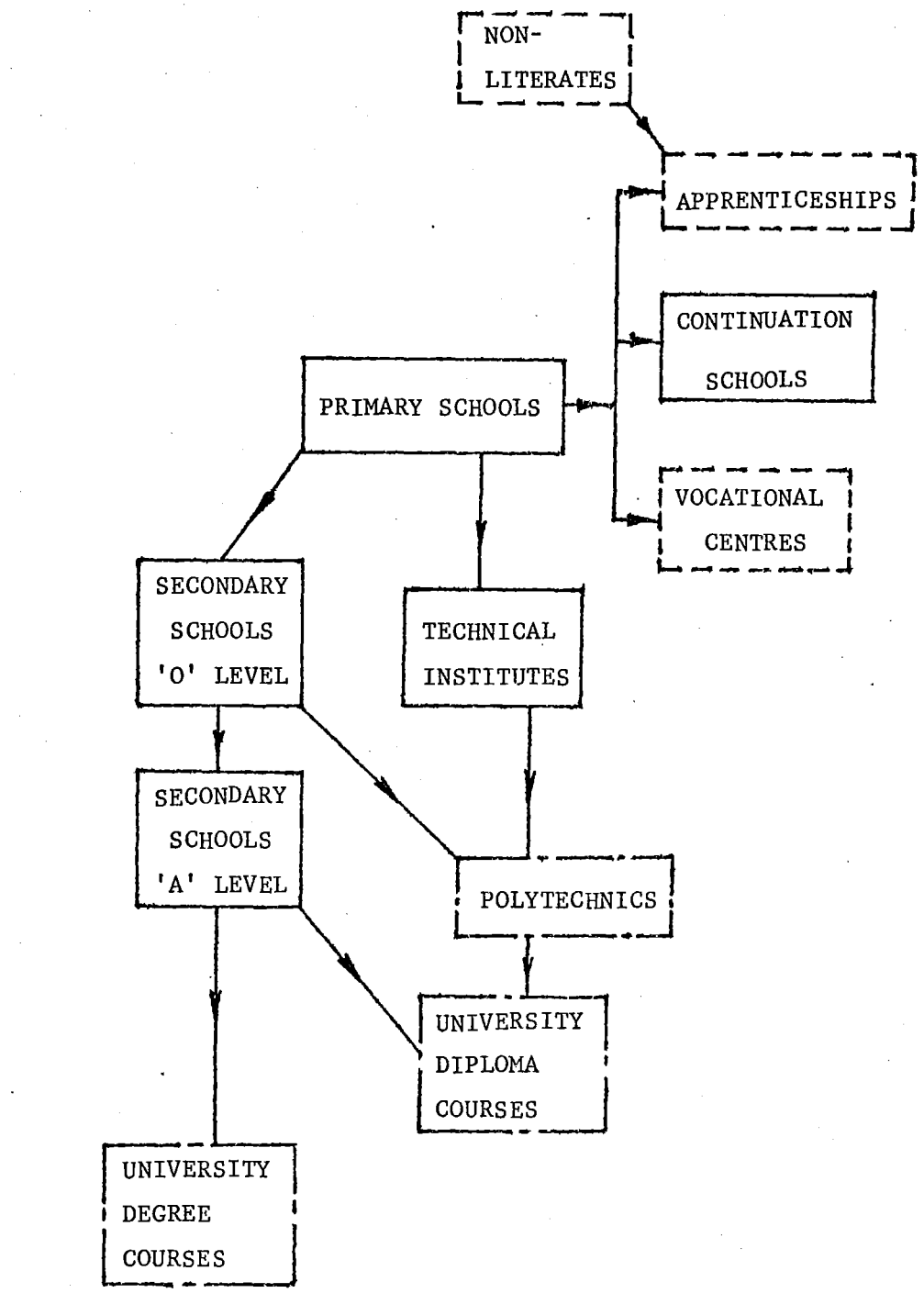
A higher diploma course in civil engineering is run at the University of Science and Technology in Kumasi, turning out technicians with considerable versatility, able to work in civil engineering design and construction, building construction, quantity surveying and building services design and installation. The university also provides certificate and diploma courses in geodetic engineering. (See Fig. 11.1)

Technical teachers and instructors are trained at the Technical Teacher Training Centres in Kumasi and Mampong. But this has not relieved the shortage of qualified teachers which is one of the major factors hindering the development of technical expertise in Ghana.

In 1976-77, the Polytechnics trained 963 persons of supervisory grade in building crafts, and the Technical Institutes trained 2105 of supervisory and tradesmen grades[12]. Table 11.3 shows the actual enrolment in 1974/75 and 1975/76 and the projected enrolment up to 1980 for the polytechnics, technical institutes and teachers training centres. The figures indicate planned expansion of intake (up to 50 per cent for teachers centres 1978-79/1979-80) for all the institutions in each plan year, increases which seldom took place.

The constraints on the expansion of the training of technicians

FIGURE 11.1. The Structure of Training and Education for Construction in Ghana



Key:

Controlled by Ministry of Education

Controlled mainly by NVTI

Controlled by Council for Higher Education

TABLE 11.3. Five-Year Development Programme (1975-80)

Enrolment Projection for Technical Institutions

Institution	Actual Enrolment		Projected Enrolment			
	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
Polytechnics	5,500	6,050	6,655	7,653	8,800	10,120
Technical Institutions	4,700	5,250	5,857	7,493	10,911	14,200
Technical Teachers Training Centres	540	560	600	720	980	1,400

Source: Five-Year Plan 1975-80

are similar to those outlined for the trades (see 11.4.1). In addition, technician training concentrates on the technical, to the exclusion of the managerial aspects of construction.

11.7. Management

11.7.1. Management Development

The development of management skills has received attention in Ghana's education programmes. A degree course in Business Management is provided at the University of Ghana at Legon, near Accra, and post-graduate courses in Business and Industrial Management are run at Legon and at the University of Science and Technology, Kumasi. The Ghana Institute of Management and Public Administration at Greenhill, near Accra, is concerned with public administration and general management; it offers residential full-time courses as well as occasional refresher courses. The only institutions which have tried to enhance the level of management skills in the construction industry are: the Management Development and Productivity Institute, which has branches in Accra and Kumasi, and the University of Science and Technology, Kumasi.

11.7.2. The Management Development and Productivity Institute (MDPI)

The MDPI was set up in 1967 by the government of Ghana, the UNDP and the International Labour Office (ILO), to succeed the National Productivity Institute which had been created in 1964. Its objectives are[13]:

(a) to improve and develop the standard of management in all aspects and at all levels;

(b) to introduce suitable management practices and techniques; and

(c) to promote increased efficiency and productivity in industry, commerce and other related fields.

The MDPI organises short training courses for personnel in top management from all sectors of industry and commerce, provides consultancy services to industry, and serves as a centre for collection, analysis and dissemination of modern developments in the fields of management and organisation. It maintains a staff of qualified consultants and instructors, although it recruits experienced personnel from outside to contribute to its courses as need be.

11.7.2.1. Construction Management

The institute does not have a unit devoted to construction, and none of its personnel has a qualification in construction management. Its activities in the construction sector have only been in the form of occasional seminars for contractors under its Ghanaian Business Bureau[14].

These seminars provided courses on subjects including: basic management, site supervision and bookkeeping techniques. They were organised not as part of the MDPI's own regular programme but at the request of the regional branches of the Contractors' Association (see 13.8). The institute's courses are advertised in the media: applicants have to be sponsored by their employers, and should pay a fee, which is

rather high for courses for contractors and engineers. The response from contractors to invitations to attend the courses has been far from enthusiastic because of the financial commitment involved, and also because:

(1) many contractors do not see the need for training since they reckon they make adequate profits without it; and

(2) the difficulties facing the construction industry make sound knowledge of management principles irrelevant (see 13.5.3).

The MDPI has also observed that its products are not able to put into practice their acquired knowledge due to the conservative nature of their superiors.

11.7.2.2. Problems

The Institute has its operational problems: in Accra it occupies temporary accommodation at the moment, pending the completion of its head offices; its classrooms are poorly equipped; and, lacking suitable residential accommodation for participants, it has been unable to organise full-time courses.

11.8. Professionals

Of Ghana's three universities only the University of Science and Technology in Kumasi provides training for professional and semi-professional personnel for the construction industry.

11.8.1. The University of Science and Technology (UST)

The Kumasi College of Technology was established in 1951 and upgraded to full university status in 1961 to become the University of Science and Technology (UST).

The Courses[15]

The Faculty of Engineering, created in 1952, offers four-year degree courses in civil, mechanical, electrical and geodetic engineering, after which graduates can apply for membership of the Ghana Institute of Engineers (Gh.I.E.) after two years' post-qualification experience.

The Faculty of Architecture was first formed in 1957 as the School of Architecture, Town Planning and Building. It trains Architects, Quantity Surveyors, Building Managers, and Planners.

The course in Architecture lasts six years: a four-year first degree course and two-year diploma. Two years' experience qualifies graduates to take the membership examination of the Ghana Institute of Architects (GIA). The building course takes four years, students opting to specialise in either Quantity Surveying or Building Management. The graduates can take an examination to become members of the Ghana Institution of Surveyors (GIS) after two years in the field. There is, as yet, no professional institute for builders. The Planning courses are: a three-year semi-professional diploma which is being phased out, a four-year degree course in Urban Planning, and a two-year post-graduate course in Regional Planning. Holders of the planning degree can apply to be members of the Ghana Institute of Planners after two years' experience.

11.8.1.1. Training at UST

The content and background of training at UST have a distinctly foreign flavour. The textbooks, references and examples are usually from media other than Ghanaian (mainly British). The graduates are thus well-steeped in the "correct practice"[16] but out of touch with local conditions. Worse, with current difficulties involved in obtaining import licences (see 7.7.1), the books and teaching aids are out of date, with obvious implications, not the least being that students

may be taught principles and procedures which are not only inapplicable in Ghana, but also no longer apply in their places of origin[17].

Attempts by lecturers at UST to write textbooks more appropriate to the Ghanaian context have petered out for want of encouragement from the authorities and the lack of incentive in view of the smallness of the domestic market for such books, not to mention imagined or real problems such as obtaining suitable publishers.

11.8.1.2. Students Research and Industrial Training

In their final year, students are assigned research projects of academic or practical interest to report on as part of the requirements for their final examination. Some of these, like village development schemes and designs of particular buildings, have actually been implemented.

Industrial training for the students of UST takes the form of a three-month attachment to consulting and contracting organisations from July to September each year. In reality, it is difficult to place the students in positions in which they can learn anything because of the short duration of their tour and their tendency to overrate their ability. Their attitude to work has created problems of discipline for several organisations who have been unable to sanction malingering or absentee students over whom they have no powers of hiring and firing: the students' allowances for their training are paid directly by UST[18]. Some of the more reputable private organisations refuse to accept students for practical training[19].

11.8.1.3. Multi-disciplinary Training

A positive aspect of the courses at the Faculty of Architecture is their multi-disciplinary nature. This approach was necessitated by a shortage of personnel. For example, all degree students at the

faculty have a common first year, in which they study almost the same subjects. Again, third-year building and fourth-year design students attend the same lectures in building economics. More important, the students are assigned tasks of practical significance, the solution of which requires contributions from each professional category. For instance, planning students would formulate an area scheme, design students would design the buildings in the scheme, and the building students would provide cost advice, prepare bills of quantities, design the structures and propose solutions to problems of site management.

The UST, therefore, has done much more than most institutions to give students an appreciation of the interdependence of the various participants in the construction process and to prevent excessive professionalism[20]. (See 3.6.6.).

11.8.1.4. Faculties' Research and Consultancy

The Faculty of Architecture's Department of Housing and Planning Research has pursued extensive studies into aspects of Ghana's construction industry, particularly in appropriate technology, housing and socio-cultural factors of development (see 10.5.1.1-2). Being able to call on the expertise of the staff at the faculty, it is better-placed than the country's other research institutions concerned with construction.

UST's Technology Consultancy Centre (multi-professional) is the means of enabling industry to tap the knowledge of the university's professional staff. It publicises research material suitable for practical implementation and has assisted small-scale industrialists to establish or improve upon their own production units, particularly those using local raw materials[21].

11.8.1.5. Problems

UST's annual intake of students to various courses in construction is low (see table 11.4) and has not been increased considerably in recent times despite the government's insistence (through the Council for Higher Education)[22]. Some of the reasons for this are:

(a) University Education in Ghana is free and depends on government subvention which has been inadequate to support any programmes of expansion;

(b) there is an acute shortage of classroom accommodation, teaching aids and vital laboratory and workshop equipment. Practically, the numerical size of the classes is limited by the physical sizes of the classrooms (a new central classroom block is several years behind schedule);

(c) Universities in Ghana were, until recent years, wholly residential. Serious problems with residential accommodation caused an off-campus accommodation scheme to be formulated. Provision of suitable transport for students living off-campus will soon prove a hindrance to this scheme;

(d) there is a shortage of staff: the university is losing staff at a high rate. Salaries and conditions of service are very unattractive to suitably qualified personnel[23]; and

(e) the unwillingness of the UST authorities to increase intake since they perceive that it would, in the face of the shortage of facilities and staff, lead to a dilution of standards.

11.9. Constraints on Training in Ghana

11.9.1. Finance

Finance appears to be the most important short- and medium-term constraint on all training in Ghana, but there is a limit to what the overburdened national economy can bear (see 6.4.6). Introducing

TABLE 11.4. University of Science and Technology, Kumasi - Degrees, Diplomas and Certificates Awarded in Subjects in, or Related to, Construction (1962-76)

Faculty/Course	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	Total
Faculty of Architecture																
B.Sc. (Design)	-	-	5	11	3	19	7	5	14	26	17	20	19	17	12	175
B.Sc. (Building Technology)	-	-	-	1	10	9	5	11	20	16	17	15	13	17	17	151
B.Sc. (Planning)	-	-	-	-	-	-	-	-	-	-	-	7	13	14	14	48
M.Sc. (Architecture)	-	-	-	10	3	4	5	13	1	-	-	-	-	-	-	36
Post-Graduate Diploma in Architecture	-	-	-	-	-	-	-	-	-	6	12	26	13	14	71	142
M.Sc. (Planning)	-	-	1	1	3	15	-	12	9	5	2	3	-	3	-	54
M.Sc. (Building Technology)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Diploma in Building Technology*	44	9	6	5	1	-	-	-	-	-	-	-	-	-	-	25
Diploma in Physical Planning	-	-	-	-	-	18	24	12	13	11	15	17	16	19	17	162
Diploma in Community Planning	-	17	13	13	6	-	-	-	-	-	-	-	-	-	-	49
Inter RIBA*	4	12	8	-	-	-	-	-	-	-	-	-	-	-	-	24
Inter Town Planning Inst.Dip.*	5	4	-	-	-	-	-	-	-	-	-	-	-	-	-	9

*Course discontinued.

TABLE 11.4. (cont'd)

Faculty/Course	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	Total
Faculty of Social Sciences																
B.Sc. in Land Economy	-	-	-	-	-	-	-	-	16	16	28	15	11	14	16	116
Cert. in Estate Management	-	-	-	-	-	-	19	12	8	6	7	6	17	16	19	110
Faculty of Engineering																
B.Sc. - Civil	12	11	11	12	16	13	15	10	17	26	18	15	18	17	33	244
- Mechanical	7	2	2	8	7	14	10	16	22	14	12	19	11	8	11	163
- Electrical	7	8	9	12	10	12	11	12	19	17	17	14	9	11	12	180
- Geodetic	-	-	-	-	1	-	1	-	1	-	-	-	3	-	-	6
Diploma - Civil	-	3	3	8	-	-	-	-	-	-	-	14	-	18	15	61
- Electrical	-	14	9	20	16	11	1	22	22	20	-	18	31	19	32	235
- Mechanical	-	4	9	12	14	17	3	18	20	14	3	30	23	19	35	221
- Geodetic	-	-	-	-	-	-	-	-	7	-	-	3	12	-	6	28
Certificate in Geodetic Engineering	-	-	-	-	-	-	-	-	18	20	3	-	9	-	-	50
Post-Grad.Dip. in Geodetic Eng.	-	-	-	-	-	-	-	-	2	2	2	3	-	-	-	9
Post-Grad. Dip. in Sanitary Eng.	-	-	-	-	-	-	2	-	-	-	-	3	-	-	-	5

Source: University of Science and Technology, Annual Calendar, 1977-78.

fees for university students is not politically acceptable to government, at least for the time being, since a similar attempt in 1971 led to public outcry and unrest on the campuses and was rescinded by the second military government when it assumed power in 1972. (See 6.4.5).

UST has tried to alleviate its financial problems, establishing an endowment fund to elicit contributions from individuals and organisations to help finance its capital expansion and research programmes. Response to the well-disseminated appeals has been less than enthusiastic.

Some private organisations, such as the Pioneer Tobacco Company, award a number of scholarships to students in the universities but this makes little impact on the institution's financial burdens.

The secondary schools, technical institutes and polytechnics, with less independence and influence than the universities, face similar financial problems, about which they can do very little.

Whereas the introduction of levies on contractors to establish a central training fund might appear a theoretical solution, its implementation will be difficult. Contractors will do their utmost to evade the payment of their contributions. Many of them do not pay the subscription fees of their own association. (See 13.8.4).

11.9.2. Time and Other Resources

Even if finance, including foreign exchange, could be obtained, it would be some time before the facilities were appreciably improved or expanded. This is the result not only of the long gestation of construction projects (see 3.6.3) but also the inadequate capacity of the local construction industry[24] (see 6.5.4).

Again, if increasing the number of trained personnel is not to take place at the expense of their quality, the number of qualified

teachers and instructors needs to be increased proportionately. It takes much time to train such persons, and much effort and resource to keep them despite covetous advances by the private sector and other countries.

These problems account for Ghana's inability to meet its needs for most categories of skilled personnel despite persistent efforts at all levels (see Fig. 11.1).

11.10. Employment

Having completed a period of training it is necessary for qualified persons to obtain employment in the industry. The public sector accounts for the bulk of recorded employment in construction (see Table 11.5), although as pointed out in Chapter 7 (see 7.3.2.1, 7.3.3.2 and 7.3.4.2), levels of remuneration are lower in this sector than in the private sector and there is a tendency for skilled personnel to move from the latter to the former. Data on employment in construction are particularly suspect due to the industry's reliance on casual labour and the widespread nature of self-employment. Thus only figures for the public sector are reasonably accurate. Employment for construction personnel exists in both public- and privately-owned consultancy and contractor organisations. Recorded employment in construction is of the order of 50,000 persons. The fluctuations in

TABLE 11.5. Public and Private Sector Recorded Employment in Construction, 1965-74

(Thousands)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Public Sector	52.7	31.0	33.3	38.3	41.6	35.2	29.4	37.3	30.3	28.9
Private Sector	20.1	15.2	14.3	16.4	15.7	14.6	14.7	12.8	16.0	18.5
Total	72.8	46.2	47.6	54.7	57.3	49.8	44.1	50.1	46.3	47.4

Source: Economic Survey 1969, 1972-74

employment and factors causing them are discussed in 12.2.1. Contractors are considered in Chapter 13. Consultancies are now discussed.

11.10.1. Consultancies

The bulk of the nation's capacity in terms of consultancy lies in the public sector, in the AESC, PWD, GHA, Town and Country Planning Department and in other parastatals and government departments which retain their own consultants, such as the State Housing Corporation, the Forces and the Universities. There are also a number of private consulting firms.

The AESC is charged with the responsibility of registering all consulting firms in Ghana (see 7.3.4), and figures obtained from the Corporation indicate that in 1979 there were 30 Architectural, 32 Engineering (the majority of them Structural Engineering) and 13 Quantity Surveying firms. It is likely, however, that these do not include all firms operating in Ghana: they indicate only those firms wishing to undertake contracts from the AESC. Apart from engineering firms which belong to the Ghana Consulting Engineers Association, the others are administered directly by their respective professional bodies (see 11.11.1). Planning consultancy is a new phenomenon: only five firms had been formed by 1979 (see also 9.4.5.5).

There are few expatriate consulting firms operating in Ghana, and these are not recognised by the institutions and associations which insist on each firm having at least on qualified Ghanaian as partner.

Most consulting firms are small and almost all are based in Accra (27 of the 30 Architectural firms registered by the AESC, and all Surveying firms; one of the latter has a branch in Kumasi). Almost all consultancy firms in Ghana are partnerships. There are a few multi-disciplinary firms; instances of firms of different professions maintaining a continuing though informal and non-committal relationship

from one project to another are also becoming common.

Apart from a few design contracts that are awarded after competitions, most consultancy jobs in construction are obtained by lobbying. The older, better-established and better-connected firms do a larger proportion of the work. New firms find it particularly difficult to break into the market. This has become a source of frustration to young, promising graduates, eager to set up their own consultancies.

11.10.1.1. Implications

Thus, whereas public sector employment is unattractive to qualified Ghanaian professionals, they also find it difficult to set themselves up in business. This has enabled the better-organised firms to control the level of remunerations in the private sector too, and has tended to make this sector an unattractive alternative for newly-qualified persons. Finally, these factors have fuelled the exodus of skilled personnel. (See 11.3.2).

11.11. Institutions

The way in which persons involved in construction are organised is also important. As shown in 3.6.6, professional snobbism and lack of communication can hinder efficient performance in construction. The nature of professional and other institutions in Ghana are now discussed. (Some writers mentioned the role such organisations can play in the development of the construction, see 5.4.3.1.) The Contractors Association is discussed in Chapter 13.

11.11.1. Professional Institutions

Professional bodies in Ghana are required to register with the Registrar-General on the condition that they represent more than three-quarters of the number of persons in the country trained and qualified

in the particular profession[25]. Thus only one institution can represent any profession. The law also bars any person not duly registered with a recognised professional body from practising the profession in Ghana. Finally, it empowers each professional institution to appoint a disciplinary authority which would have some of the powers, rights and privileges of a High Court.

The professional bodies in construction in Ghana are:

Ghana Institute of Architects (GIA)

Ghana Institution of Engineers (GhIE)

Ghana Institute of Planners (GIP), and

Ghana Institution of Surveyors (GIS).

Each of them sets a minimum age of 21 for associate membership. They organise examinations or interviews to admit new members (see 11.8.1). They readily recognise professional qualifications obtained in some foreign countries, especially Britain, but might insist on further examination of persons qualifying in other countries.

Generally[26], the institutions aim at securing the advancement of knowledge in their fields, promoting the welfare and status of members, upholding standards of competence and etiquette among members, furthering relations between them and others engaged in related fields in Ghana or similar bodies outside the country, and promoting the understanding of the profession by the public. They are represented on governing boards of institutions training students in their fields and have a say in syllabi and standards of instruction and qualification.

11.11.1.1. Membership

Table 11.6 indicates the membership of some of the institutions in March, 1979. The figures include foreigners practising in Ghana, (although there are few: of 171 members of the GIA only 7 were expatriate), and registered members working outside the country (28 of

TABLE 11.6. Membership of Professional Institutions in March, 1979

Ghana Institute of Architects	171
Ghana Institution of Engineers	851
Ghana Institution of Surveyors	174

Source: From lists provided by the GIA, GhIE and GIS.

the GIA's members). Almost all of Ghana's professional persons work in Accra and Kumasi in public or private consultancy and contracting organisations, or in education and research.

Professionals in Ghana do not enjoy the high reputation for competence and honesty associated with their counterparts in most other countries[27]. They are often accused of colluding with contractors to defraud clients, of poor performance and of corruption in soliciting for consultancy services (see 7.3.1.3). The institutions are, generally, not able to maintain standards of competence and discipline. Government has complained that:

> "... there is the need to re-design some projects to reduce costs. Buildings for schools, offices, workshops, etc. are often so designed that their functional use is lost. Government has directed the Ministry of Works and Housing to vet all designs ..."[28]

11.11.1.2. Activities

The professional institutions in Ghana have not been active and have tended to be inward-looking. They have not been vocal about the issues facing the local construction industry and have seldom individually or jointly applied themselves to the solution of any of its problems. Inter-disciplinary links have been symbolic or manifest only on government-appointed technical committees, but professional snobbism is less apparent than in some other countries although the various institutions tend to pursue the interests of their members and protect their fields of activity, defined in their constitutions and/or bye-laws[29]

from infiltrators. Finally, within the institutions, there appears to be a split between the older, more conservative, and the newer members. (See 11.10,1.1).

11.11.1.3. Potential

Thus, although Ghana has a number of professional institutions with admirable aims and several members, they have been generally weak and inward-looking, and the potential contributions they can make to the development of the local industry are yet to be realised.

11.11.2. Trade Unions

Unions in the construction trades date from the Carpenters and Masons Association in the 1920's[30]. Now most workers in the industry belong to the Construction and Building Workers Union, which is an affiliated member of the Trades Union Contress (TUC). The aims of the congress include[31]: the achievement of high living standards, improvement of wages and better conditions of service; attainment of shorter working hours, security against sickness, unemployment, old age or accidents and other hazards of life and work; support for national development efforts through efficient workmanship and maximum productivity; and encouragement of the creation of workers' cooperatives.

It has branches in all the regions, finances its activities from members' contributions and represents individuals or groups of workers on matters affecting their welfare in discussions and negotiations, especially collective agreements, with government and employers. It has not done much in the area of increasing worker productivity, although it has averted or settled some industrial disputes.

11.12. Conclusions

Experience in Ghana has shown that education and training

programmes should not concentrate only on increasing the number of trained persons but should also consider issues such as:

11.12.1. Content

Turning out large numbers of persons unsuited to the peculiar conditions prevalent in the country is wasteful and deceitful. In practice, students might have to "unlearn" or forget many of the facts they conscientiously imbibed at school, or to revise the opinion of themselves that their training had given them. (See also 1.4.7).

It is possible that slight alterations in course content and background would have a more decisive effect on the inadequate executive capacity than numerical increases in the studentry. Under Ghana's present economic circumstances, the former is a worthwhile if not the only possible approach (see 6.4.5-6).

11.12.2. Balance

Rather than emphasise education and training in all sectors, it is essential to identify areas of greatest need in which efforts should be concentrated. Above all, programmes should attempt to balance out the relative numbers of specialist skills if surpluses in some skills should not exist together with shortages in other, more vital ones.

It is unwise to neglect the nature of the construction process while formulating training programmes. For example, the number of assistants needed by each category of professional construction personnel should be reflected in the relative numbers trained if the situation that has resulted in Ghana, where professionals do tedious or administrative jobs on which they put little of their skills to use[32] with its implications on morale and productivity, is to be avoided or redressed[33].

11.12.3. Organisation

Considering 11.12.2, there is the need for the effective coordination of education and training programmes for the various categories of personnel, and of the different institutions. Thus, in Ghana, there is a case for establishing a body, preferably within the Ministry of Works and Housing, to organise, coordinate and control all training for construction. (See Fig. 11.1)

11.12.4. Need for Training

Training or education should not be pursued as if it were a necessity for success in all ventures. Certain entrepreneurial skills such as risk-bearing cannot be developed in formal training, and there are situations in which the application of theoretical principles, such as trying to use management techniques in Ghana's present unpredictable construction environment, leads to frustration. It is also possible for persons unencumbered by formal education or training to perform well, like Ghana's self-employed labour-only contractors, in situations demanding in particular flexibility, informality and personal relationships[34].

11.12.5. Attitudes

The attitudes of primary and secondary school leavers to the various professions determines the profession or vocation they opt to train for. Until recently, the prestige attached to office jobs in Ghana had reduced the number of persons entering construction training programmes. Such attitudes are traceable to society's values and, to some extent, the rewards to be obtained from various areas of endeavour, as well as the orientation of primary education.

In the field, the classical clash between highly-educated youth and not-so-well educated but experienced elderly persons can lead

to wasteful conflict. The attitude of government, organisations and senior personnel to training is, therefore, important if the trained persons are to be put in positions in which they can be most beneficial. Also important is the trainee's humility.

11.12.6. Remuneration

A successful training programme should be linked with an appropriate incomes policy if qualified personnel are to be retained in the country. Failing this, the considerable mobility of skilled personnel will precipitate their exodus to places where conditions are manifestly better: in Ghana's case, to Nigeria in particular, but also to such far away places as Botswana, Zambia and Libya. The nation, thus, loses the personnel it has trained at much expense to others[35].

11.12.7. Employment

Notwithstanding the number of qualified persons in a country, it is possible for inefficiencies to occur if such persons are not used correctly. The deployment of personnel in positions in which their skills are most needed is important. It is also essential that no hindrances are placed in the way of persons wishing to enter particular fields of construction activity.

Another facet of this issue is that of promotion on merit and the allocation of satisfying and challenging duties to persons to enable them to 'mature' on the job.

It is clear, therefore, that if training and education of construction personnel should be of maximum benefit, each should be tailor-made to suit the particular conditions of the country and also be accompanied by appropriate measures conducive to its success as well as the deployment of its products. Moreover, too much should not be expected of training since the construction industry and the

administrative machinery of the country may possess in-built traits for inefficiency, no matter the number of qualified personnel made available to it. To conclude, some of these traits are considered.

11.12.8. Constraints on Efficiency

The number of skilled personnel in Ghana's construction industry has not made any impact on its efficiency for a number of reasons:

(a) the lack of effective cooperation amongst participants in the construction process, professional rivalries and jealousies. These are more pronounced amongst the older consultants than those trained at UST (see 3.6.6. and 11.1.2). Mistrust of the contractor by the client and consultants is also common: this is reponsible for the very long procedure of interim certification and payment of the contractor's work (see 9.7.2-4);

(b) the lack of understanding on the part of most clients, and particularly government officials, of the nature of the construction process, and their impatience with the slow conventional construction procedures, especially at the pre-contract stage, lead to the neglect of planning and programming and established policy (see 9.6.7);

(c) inter-organisational competition among bodies that are meant to cooperate[36]. This is often the result of the vagueness of definitions of the bodies' spheres of influence or personality clashes amongst their heads (see 8.2.3.2);

(d) instances of obvious corruption, patronage, nepotism and all forms of favouritism have generated intra-organisation friction and caused much frustration and low esprits de corps; and

(e) the occupation of the titular or ministerial headships of some institutions by politicians and similar laymen who are inclined to

disregard the advice of professionals; and the non-resolution of the old problem of the relationship between professionals and administrators in the same public organisations are also sources of conflict (see 7.9.2).

11.13. Notes and References

1. Government of Ghana, Five-Year Development Plan 1975/76-1979/80, Part II, Accra, 1977, p. 337. See also Taylor, E., An Organisational Approach to the Analysis of Problems Affecting Education and Manpower Planning in Ghana, Research Institute of the Friedrich-Ebert-Stiftung, Vol. 107, Bonn, 1974.

2. Government of Ghana, op. cit. (ref. 1), p. 414.

3. Government of Ghana, One Year Development Plan, July 1970 - June 1971, Accra, September 1970, p. 148.

4. In doing this the Board places emphasis on the development of those skills that are vital to the country's development.

5. Taymann, S.Y., Interim Report on the Manpower Situation in the Construction Industry, Manpower Board, 1977 (unpublished).

6. Taymann, S.Y., op. cit. (ref. 5).

7. By 1979 labour was dictating its own wage levels. Contractors reported to the author in March-May 1979 that masons and carpenters commanded up to ¢15.00 a day, compared to the government's level of just over ¢5.00.

8. Government of Ghana, op. cit. (ref. 1), p. 344. "Studies carried out so far indicate that while there is growing unemployment among some categories of the products of the technical schools there is at the same time serious shortages among other categories of technicians in the economy."

9. Information Services Department, Ghana Today 9, Education in Ghana 1930-74, Accra, 1974, p. 6: "The old problems militating against the progress of technical education [were] - lack of job openings, the prestige attached to white collar jobs, the example set by the most prosperous Europeans and the consequent low social status accorded to technical education ..."

10. One of the aims of the new educational structure, to be fully operative in 1980, is to: "... provide opportunities that will pre-dispose pupils to acquire the knowledge, skill and pre-vocational experiences that will enable them discover their aptitudes and potentialities and to develop a longing for further improvement." - Ibid, p. 1.

    It will be compulsory for primary and secondary pupils to study woodwork, metalwork, masonry, and technical drawing. It is hoped that this would: "...help pupils to appreciate the dignity of work and the interdependence of all workers." - Ibid, p. 2.

11. Danquah, M. (ed), Ghana: Economic Review 1972-73, Editorial and Publishing Services, Accra, 1973.

12. Figures obtained from the institutes.

13. Government of Ghana, An Official Handbook 1976, Information Services Department, p. 371.

14. Some of its occasional courses might interest persons involved in construction (notably Network Analysis, Materials Management and Management Development for Engineers). - Management Development and Productivity Institute, Management Training Programme, Accra, 1979.

15. See Government of Ghana, op. cit. (ref. 13), pp. 304-310, for an account of the history and activities of UST and details of the courses.

16. The principle is to teach the student as much as possible about the British industry and practice. This may be the result of the affiliation of the faculties with professional institutions in Britain (as well as those in Ghana), and the belief among the staff, having been trained abroad themselves, that British practice is the ideal and the extent to which Ghana's differs from it should be reduced.

17. Thus graduates in Ghana know little about local materials or the way in which AESC or the Contractors Association works, but are very familiar with constructional details around fireplaces, the Property Services Agency and the National Federation of Building Trades Employers.

18. Students' lack of discipline persists, although the University's Regulations for Students on Practical Training states that: "Students shall conform to the rules and regulations of the organisations to which they are sent for training. They must keep factory hours and should not expect any special privileges over the workers of the organisation." - University of Science and Technology, Calendar 1976-78, Kumasi, 1976, p. 150.

19. Since the University's adoption, in the 1978/79 academic year, of the American semester system (with a short end-of-year) break, the practical training programme is being restructured.

20. Andrews et al advised that: "Perhaps the central requirement of an educational policy for construction is the introduction of joint courses to prevent institutionalised specialisation ..." - Andrews et al (1974). p. C.8.

21. For a detailed account of the Technology Consultancy Centre's operations see Holterman, S., Intermediate Technology in Ghana, Intermediate Technology Industrial Services, London, 1979.

22. Since 1973, for example, the annual intakes for B.Sc. Design and B.Sc. Building Technology have been increased to 20 apiece, as against the level of 25 preferred by the council.

23. The Vice-Chancellor of the University of Ghana, Professor D.A. Bekoe, speaking at the Annual Congregation Ceremony (1980) said: "... conditions of service in Ghana's universities [are] not competitive enough to attract and keep the staff ... needed ... If conditions do not improve in the near future in terms of staffing and facilities we shall be forced to reduce our intake if we are to do our duty by those we admit." - In "Mortal Blow", West Africa, No. 3256, 10 December 1979, p. 2303.

24. Thus the low capacity of construction tends to hinder programmes that could help expand it.

25. Government of Ghana, Professional Bodies Registration Decree (NRCD 143).

26. As stated in their constitutions and bye-laws.

27. "As compared to other Third World countries ... Ghana does appear to have a greater percentage of educated and skilled personnel ... It is curious, therefore that ... the country's affairs should be in such a disreputable state ... this famed group of educated and skilled people in the society must face up to the fact that the country has not had the benefit due it from their skills ... the attitude of Professionals in this country has been that of leaving things of national importance alone for as long as their own little corners were alright.... Otherwise, how could so many engineers, surveyors and others sit by ... while the state of our roads reach abominable proportions? " - Graphic View, Challenge to Professionals, Daily Graphic, 13 March 1980, p. 2.

28. Government of Ghana, Budget Statement for Fiscal Year 1978-79, Accra, 12 September 1978, p. 24.

29. See, for example, Ghana Institution of Engineers: Constitution of the Ghana Institution of Engineers, June 1968, Accra; and Ghana Institute of Architects, Constitution and Bye-Laws.

30. Government of Ghana, op. cit. (ref. 13), p. 368.

31. Ibid., p. 370.

32. "One disquieting characteristic of the occupational structure of the labour force in Ghana is the lop-sided development of the normal staffing pyramid which shows a more favourable ratio of professionals to technicians and a lower ratio of technicians to craftsmen than is normally to be found in advanced countries." - Government of Ghana, op. cit. (ref. 1), p. 344.

33. With the little resources at the country's disposal it becomes necessary to concentrate effort on areas where the greatest results are most likely, and it is also imperative that the best use is made of all available resources. Thus needs should be assessed most carefully, and the relationships of the parts to one another and also to the whole studied.

34. The usual stress on expanding education and training is criticsed by Reilly (1979), who wrote: "The emphasis should be on quality, not quantity. The expansion of training is often recommended and not only by those with a vested interest in the training business. Sometimes it may be necessary, but most frequently it is not ... More training often results in a lowering of standards. It probably means having to recruit and train more trainers; larger classes; a greater strain on management; ..." - Reilly, W., Training Administrators for Development, Heinemann, London, 1979, p. 146.

35. See, for example, Brain Drain From Ghana, Viewpoint in the Consultant, Vol. 2, No. 1, May 1977, p. 2, for a consideration of the scope and reasons behind the exodus.

36. For example between the Ministries of Finance and Economic Planning (see 8.2.3.2); between the BRRI and DHPR (see 10.5.1 and 10.5.1.1); and among PWD, AESC and GHA (see 7.3.1.6).

CHAPTER 12

TECHNOLOGY

"There is widespread evidence that in all sectors of the economy developing countries often utilise inappropriate production techniques, in other words, techniques which make less than optimum use of national resources, do not save scarce foreign currency, and last but by no means least aggravate the already serious problem of unemployment ... road construction ... is one of the sectors most amenable to the use of 'appropriate technology'. Various alternative, efficient, more labour-intensive construction techniques already exist ..."

- Allal, M., Edmonds, G.A. and Hussain, M.I., Development and Promotion of Appropriate Road Construction Technology, International Labour Review, Vol. 116, No, 2, September-October 1977, p. 183.

"The government is determined to end the uneconomic methods of building houses in the country. Its policy is to introduce power machines into the building industry and it will also experiment in houses that can be mass-produced ..."

- Government of the Gold Coast (later Ghana), The Development Plan 1951: Being a Plan for the Economic and Social Development of the Gold Coast, 1951-56, Accra, 1951.

12.1. Introduction

The relative labour-intensity of construction technologies is often referred to (see 3.7). Ideas on the techniques of construction that should be used in the developing countries have been varied: some writers consider industrialisation inevitable and urge the countries to adopt policies for gradually achieving it (see 5.4.3.1), whereas others advise the adoption of intermediate technologies (see 5.4.3.2). Yet other writers recognise that certain items of construction calling for high-level technologies are needed by these countries at the early stages of their development: these, they suggest, should be left to foreign firms (see 5.4.2). Each approach to the issue justifies its choice on socio-economic cost-benefit grounds: generally, each country should

choose an appropriate technology (see tactic (7) in 'Synthesis'5.6).

This chapter considers construction technologies utilised in Ghana, and shows that:

(1) a wide range of technologies are used in Ghana for a number of reasons; and

(2) choice of technology has not been influenced only by socio-economic cost-benefit considerations, but also by attitudes and politics and has, therefore, been variable.

Starting with an appraisal of concepts of productivity and cost and economic determinants of technological choice, it demonstrates how and why these have not applied in Ghana, and identifies factors which have been more important. It concludes that, in the long term, the best approach should consider the whole industry and reflect desirable and applicable technologies in the different subsectors. Hence the 'appropriate' technology would, in fact, be a matrix of technologies.

12.2. Productivity versus Wages

12.2.1. Productivity

Productivity is a term, the precise definition of which is shrouded in controversy but its most usual, though not necessarily most appropriate, definition as 'output per man employed' is assumed here[1]. Productivity of labour, compared to wages, is used as a criterion to decide on the use of capital- or labour-intensive technologies, the former being most advisable where labour costs are high compared to productivity, and the latter when the opposite is the case (see 5.4.4.3.1).

The productivity of labour, however, depends upon the equipment used, as well as the quality and motivation of labour, the latter due to incentives and the effectiveness of management. Figures of gross output per head in Ghana for the period 1965-74 are shown in table 12.1. These figures are not to be taken at their face value. Figures for

employment exclude casual workers and the self-employed, and those for output do not adequately cover subsistence and other informal construction. The data in the table are meant to give a rough indication of levels of productivity over the years, rather than as absolute values.

The data in table 12.1. show no significant trend over the years, although productivity has remained at less than ¢5 per man per annum. Government has had cause to lament that

> "... the productivity of the labour force is at present very low. This defect considerably hinders efforts to speed up the expansion of the economy."[2]

TABLE 12.1. Gross Output in Construction per Man (1965-74)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Construction Output (¢10^6)	226	177	147	133	138	160	197	142	161	208
Recorded Employment in Construction (10^3)	72,8	46.2	47.6	54.7	57.4	49.8	44.1	50.1	46.3	47.4
Output per Man (¢10^3)	3.1	3.8	3.1	2.4	2.4	3.2	4.5	2.8	3.5	4.4

Source: Economic Survey 1969, 1972-74.

Some of the reasons for the low level of productivity in Ghana's construction industry are:

(a) labour laws which force employers to retain labour even beyond their requirements[3] (see 7.8.2.2);

(b) poor quality of labour due to the inadequacy of skilled personnel, which in turn is caused by the paucity of training facilities (see 11.2);

(c) poor supervision and rigid management styles which are inappropriate in the socialistic Ghanaian culture; resulting in poor management-worker relations and low morale (see 13.6.3);

(d) low wages, lack of incentives and hence poor motivation (see 12.2.2);

(e) poor tools and equipment, obsolete or badly utilised plant (see 12.6.3);

(f) failure or inability to apply management techniques such as site layouts, materials scheduling or programming and control; causing double handling, delays and wastes (see 13.5.3); and

(g) frequent shortages of materials which lead to under-utilised resources and delays on site (see Chapter 10).

12.2.2. Wages

The minimum wage for labourers is fixed by government (see 7.8.2.1) and the wages and salaries for other categories of workers are established in collective agreements using the minimum wage as a guide (see 11.11.2). Wage levels for public sector workers over the period 1961-77 are shown in table 12.2 and they portray an increasing trend, the largest single increases being in 1974 and 1977 when the minimum wage was increased by 50 and 100 per cent respectively. Comparing table 12.2 with table 12.1, it becomes clear that wages have been increasing in Ghana without corresponding increases in productivity and that construction has contributed to inflation (see 6.4.5).

It, therefore, appears advisable to replace labour with plant. It is instructive to examine the factors underlying these trends and, consequently, the reason why the theoretically correct shift to capital-intensive technologies has not occurred.

Productivity in Ghana's economy is low for reasons stated above (12.2.1). Government has adjusted the minimum wage, and hence the basis for other wages and salaries in response to public and union demands or as a means of endearing itself to the citizenry. Wage increases have seldom been related to productivity, mainly because existing levels were already obviously too low to cater for the basic needs of the average

TABLE 12.2. Government's Minimum Wages for Daily-Rated Workers (1961-77)

(Cedis)

Category	February 1961	1969	February 1970	February 1974	July 1974	December 1975	July 1977
Labourer	0.65	0.75	0.75	1.28	2.00	2.20	4.30
Senior Labourer	0.76	0.80	0.87	1.39	2.04	2.24	4.34
Labourer Headman	0.87½	0.92	0.99	1.52	2.08	2.29	4.39
Tradesman Grade II	1.12	1.30	1.39	1.95	2.78	3.06	5.46
Tradesman Grade I	1.49	1.56	1.63	2.13	2.99	3.28	5.78
Watchman (Day)	0.70	0.75	0.93	1.45	2.04	2.24	4.34
Watchman (night)	0.81½	0.86	1.03	1.56	2.08	2.29	4.39
Messenger	0.70	0.75	0.81	1.33	2.04	2.24	4.34
Blaster	0.70	0.75	1.00	1.70	2.12	2.33	4.43
Concrete Mixer Operator	0.76	0.80	1.07	1.62	2.12	2.33	4.53
Driver Grade II (Group D)	1.26½	1.33	1.39	1.95	2.33	2.56	4.76
Driver Grade I	1.37½	1.44	1.55	2.05	2.43	2.67	4.97
Driver (Extra Heavy Vehicle)	1.71	1.79	1.92	2.45	2.93	3.22	5.72
Operator Grade II (Group C)	1.37½	1.44	1.55	2.05	2.43	2.67	4.87
Operator Grade I (Group C)	1.49	1.56	1.63	2.13	2.53	2.78	5.08
Operator (Group A)	1.71	1.79	1.92	2.45	2.93	3.22	5.72
Asst. Chief Operator (Group A)	2.01½	2.12	2.18	2.74	3.18	3.50	6.00
Steel Bender	0.99	1.04	1.11	1.74	2.12	2.33	4.73
Storeman	0.81½	0,86	0.93	1,45	2.08	2.29	4.39
Storekeeper	1.32½	1.39	1.47	1.96	2.33	2.56	4.66
Timekeeper	1.10	1.15	1,23	1.77	2.16	2.38	4.48

Source: State Construction Corporation.

worker: food, shelter, clothing and health[4].

Despite the phenomenal increase in wages in 1977, earnings have failed to keep pace with the rate of inflation, and calls for higher wages and industrial action to support such demands have been rife[5] (see 7.8.2). In construction, government's minimum levels have become inapplicable as going rates are several times higher (see 11.3.2 and Chapter 11, footnote 7).

12.3. Choice of Technology

In Ghana, therefore, the choice of technology has not been based on theoretical comparisons of the costs of labour and productivity, but on a host of other criteria such as government's policy, clients' attitudes, contractors' attitudes, cost, availability of skills, availability of equipment, and the time available for executing the project.

A very wide range of construction technologies are used in Ghana, from industrialised methods using mass-produced components at one end of the scale to labour-intensive ones utilising the minimum of essential tools and naturally occurring, or easily extracted or processed, materials (see also 3.4, 3.5 and 3.6.7) at the other end.

In general, road construction is highly capital intensive, heavy and medium plant and equipment being used on the simplest road project. The range of technologies in building construction is wider.

12.3.1. Categorisation

To obtain a basis for further discussion an attempt is now made to categorise the range of technologies used in Ghana:

(a) industrialised building: this refers to methods of construction in which all components are mass-produced in a factory;

(b) component manufacture: where certain parts of the building are mass-produced to standard sizes to fit any type of design, but not for specific systems as in (a);

(c) use of plant and equipment on site: where site operations involve conventional equipment or plant; and

(d) intermediate technology: where methods are labour-intensive, and use only simple tools or newly-developed, low-technology equipment.

12.4. Industrialised Building

12.4.1. Introduction

Government's desire to relieve the acute urban housing shortage has prompted it to seek the most expeditious ways in which dwellings could be constructed. In 1951 it declared its intention to:

> "... experiment in houses that can be mass-produced ..."[6]

The first attempt in this exercise was made in 1952. 168 houses were to be built in Accra, Kumasi and Takoradi, using imported precast concrete components of a system which had been marketed by a private firm of foreign consultants. The venture proved too costly and was abandoned[7].

In the post-independence programme, to establish an industrial base for the economy (see 7.7.3.1), building construction was given due attention and a factory was built in Accra to produce components for concrete building systems.

12.4.2. Prefabricated Concrete Panel Factory

The agreement for the establishment of a factory to produce large-span precast concrete elements for the construction of houses was signed between the governments of Ghana and the Soviet Union in 1962. The building systems were designed in the USSR but were modified in Ghana to suit local conditions. Site assembly was to be undertaken by the Ghana National Construction Corporation (GNCC)[8].

By 1966 the buildings had been completed and the equipment installed, but the factory was not able to commence production as the new military regime suspended the project (see 6.4.3). It stood idle until 1972 when the premises and plant were rehabilitated. At present, many of the items of plant and equipment are obsolete, and some have broken down[9]. The factory also experiences difficulties in obtaining cement and attracting qualified personnel[10]. Thus it produces at a very low level of its capacity.

Having built its first complete house in 1978 and mounted a successful publicity campaign under the slogan "Own your house in 30 days", the factory is unable to satisfy the high effective demand for its 4- and 2-storey houses from the private sector. There is a long waiting list of paid-up applicants. It has also not been able to fulfil the role envisaged for it in the government's urban housing programme[11].

12.4.3. African Timber and Plywood Limited (ATP)

Based at Samreboi in the Western Region, African Timber and Plywood (ATP) is a firm of loggers, sawmillers and plymillers which has been taken over by government from private ownership[12]. It produces components for timber-based house systems which are assembled on site by private contractors specially trained by ATP. Its houses are in demand all over the country, and it has delivered components for erection at places as far as the Upper Region.

Although timber-based buildings are not popular in Ghana (see 10.5.3), the ATP's houses are favoured by the middle-class and by certain public and private organisations such as the Universities, the Kpong Hydro-Electric Project, and the Upper Regional Agricultural Programme[13].

Because it has been unable to obtain sufficient licences to import replacement machines and spare parts, the factory produces at no more than 30 per cent[14] of its installed capacity, several of its plant having broken down. Difficulty in obtaining adequate supplies of certain species of timber, especially those that could not be found in its own concessions, has also tended to limit production[15].

12.4.4. Potential

Although facilities for industrialised building exist in Ghana, this method of construction has not made any significant impression on the industry because of its limited scale caused by economic circumstances. Its high potential is yet to be realised.

12.5. Component Manufacture

12.5.1. Standardisation

Standardisation and modular coordination of components in Ghana's construction industry have not progressed beyond simple things such as

sizes of blocks and bricks, doors and windows, diameters of pipes and gauges of wires or sheet metal. The Ghana Standards Board has concerned itself with the quality of goods (see 9.5.3), and the industry has not pursued efforts to standardise construction components to any appreciable extent[16]. Hence government's promise that: "Standardisation of building components ... will be given due emphasis"[17], is yet to be fulfilled. As a result the number of building components that can be produced off-site is limited.

No serious attempts have yet been made to analyse the standard designs for public buildings, large numbers of each type of which are built, into elements which can be produced on a large scale.

12.5.2. Manufacture

Components manufactured for construction are mainly precast concrete, timber or metal elements such as lintels, beams, drainage pipes and electric poles; timber fittings, doors and windows and their frames; metal windows, gates and fittings.

The production takes place in large factories using capital-intensive methods such as African Concrete Products in Accra, in a large number of small, privately-owned concerns using simple equipment, or in similar off-site units owned by construction firms. Production is usually on a speculative basis, in the absence of comprehensive building programmes[18].

The production units have difficulties in obtaining their inputs and in obtaining spares and replacement machinery. The difficulty in obtaining inputs is particularly serious in the case of enterprises requiring cement or imported items.

12.6. Use of Plant on Site

12.6.1. Types

Road and civil engineering construction in Ghana is capital-intensive: bulldozers, scrapers and rollers are used even on feeder road projects. Civil works: dams, harbours, sea walls and the like are designed for and built with some of the most modern technology. Some of them are undertaken by expatriate firms (see 13.4.1).

Concrete mixers are one of the first items of equipment that the budding Ghanaian contractor acquires. Bulldozers may be used to clear building sites, but the excavation of foundation trenches is usually done manually.

12.6.2. Availability

All plant and equipment used in Ghana, and their spare parts, are imported (see 6.5.3). The contractor may buy machinery from local dealers or import them directly. Either way,and especially in the late 1970's (see 6.4.5), the items have been difficult to come by, except in the few cases where projects were financed by external agencies such as the World Bank, in which case plant was imported as part of the contract. Items of plant are expensive, as table 12.3 shows.

Plant and equipment may also be hired; there are three major enterprises engaged in plant-hire activity in Ghana: Plant Pool, belonging to the Bank for Housing and Construction (see 13.7.2.1.8); Mechanical Lloyd and Tema Plant Hire. Individuals and organisations, or contractors, owning a few items of plant also hire them out. Hire rates for plant are high. Figures shown in table 12.3 are the internal rates of the State Construction Corporation which were slightly lower than market rates. It is particularly instructive to note the difference between the rates for 1978 and 1979.

Plant-hire facilities are concentrated in Accra-Tema. This implies

TABLE 12.3. State Construction Corporation - Daily Hire Charges, C.I.F. and Market Values of some Items of Plant - June, 1978

Description	Daily Hire Charge	c.i.f. value ¢	Market value ¢
Tipper Trucks			
Leyland Tipper Truck	158.59	35,000	50,750
Benz Tipper Truck	190.31	42,000	60,900
Fiat Tipper Truckl	249.21	55,000	79,750
Nissan Tipper Truck	126.87	28,000	40,600
Vibratory Rollers			
Bomag - BW 200	269.42	32,430	86,220
Clark Scheid DV 100	333.50	73,600	106,720
Dynapac CC 42A	286.60	63,250	91,710
GNR - Series 20	172.19	38,000	55,100
Wallis Road Rollers	117.81	26,000	37,700
Hyster Pneumatic Compactor 1	171.96	37,950	55,030
Bomag - BW 655	44.08	9,730	14,100
Cranes			
Edilmac Tower Crane	596.33	111,600	190,830
Self Erecting Crane	229.28	50,600	73,370
Bantam Truck-Mounted Crane	990.08	218,500	316,830
Excavators			
Excavator - (19122)RB	507.50	112,000	162,400
Excavator - MF 450	362.50	80,000	116,000
Excavator - MF Digger/Loaderl	303.59	67,000	97,150
Excavator - O & K	847.34	187,000	271,150
Dozers			
Caterpillar - D7G	833.75	147,200	213,440
Caterpillar - D8K	1172.46	207,000	300,150
Caterpillar - D6C	640.44	121,900	176,760
Motor Graders			
O & K 130G	483.74	85,410	123,840
Caterpillar 120G & 140G	569.94	100,630	145,900
Caterpillar 14G	797.92	140,880	204,270
Aveling Barford	488,52	86,250	125,100

cont'd

TABLE 12.3 cont'd

Description	Daily Hire Charge	c.i.f. value ¢	Market value ¢
Air Compressors			
Holman - CR(200-275)	65.00	16,000	23,200
Holman - CR(150-200)	53.55	13,000	18,850
CPT (450-600) CFM	148.29	36,000	52,200
Wheel End Loaders			
MF 66C	623.04	110,000	159,500
Caterpillar 996	640.03	113,000	163,850
Traxcavators			
Caterpillar 997L	690.44	121,900	176,760
Caterpillar 933	363.03	64,100	92,940
Caterpillar 941	403.13	71,200	103,200
Caterpillar 951	429.85	75,890	110,040
Caterpillar 955K & Cat 966	478.85	84,550	122,590
Articulated Trucks			
Leyland Beaver	385.15	68,000	98,600
Lowloaders			
Leyland Scammell & Seddon	498.43	88,000	127,600
Wacon Drills			
Holman	240.15	53,000	76,850
Road Finishers			
Barber Greene SF41 & Vogale	604.16	80,000	116,000
Asphalt Plants			
Batching and Mixing Plant	767.19	197,390	286,200
Stanstill Mobile Asphalt Plant	8,990.00	992,000	1,438,400
Barber Greene Asphalt Plant	2,265.62	250,000	362,500
Mixers			
Vulcan and Winget Concrete Mixer	45.31	10,000	14,500
Truck Mixer	317.18	70,000	101,500
Others			
Perlini Dumper	459.17	101,330	146,940
Water Tanker	172.18	38,000	55,100
Ashurst Bitumen Sprayer	201.39	40,000	58,000

high transport charges for contractors requiring plant elsewhere. Moreover, the shortage of plant caused by limited importation in recent years and depreciation of existing plant makes it necessary for contractors to "queue" for vital plant. A study (1975) concluded that:

> "...upwards of £40 millions worth of earth moving plant and equipment is at present in Ghana. At least 35 per cent of this equipment is estimated to be out of action at present, some awaiting spare parts but otherwise operational, some in need of rehabilitation following dereliction, and some too old for economic repair."[19]

The same thing can be said of other types of plant. In road construction, which is capital-intensive (see 12.6.1), the non-availability of plant has constrained project execution.

12.6.3. Efficiency

The shortage of plant, and the overutilisation of plant in the first few years of their lives, has engendered the use of available items of equipment beyond their economic life. There are few trained operatives[20] and plant is incorrectly used, this increases the frequency of breakdowns. Furthermore, servicing facilities are not available in the regions and few items of plant are regularly serviced or maintained. These factors, individually and together, lead to the inefficient use of plant and avoidable expense.

In addition, as plant is tied up on the site waiting for the delivery of key construction materials, which often run short (see Chapter 10), indirect costs, including the opportunity cost of the plant and depreciation, increase.

12.6.4. Standardisation

Another feature of Ghana's stock of plant and equipment is the variety of their makes. The SCC (see table 12.3), for example, has at least four different brands of trucks, six brands of rollers and three of graders, though dozers and traxcavators are more standardised. This

applies not only to plant owned by one organisation, but the makes of one body's stock are different from those of another. The result is a confusing number of types of the same item of plant and equipment from different manufacturers in different countries, each with its own characteristics. This prevents operators and mechanics from developing their knowledge of each item, and also exacerbates the problem of acquiring adequate stocks of spare parts.

12.6.5. Determinants

The above discussion shows that the use of plant in Ghana's construction industry increases costs and involves much difficulty, not to mention its inappropriateness in a country with much unemployment (see 6.3). But there are no indications of a major shift away from plant. Their use tends to be determined or encouraged by:

(1) clients' attitudes. The public sector client perceives tall buildings as a sign of progress, and is also impatient for projects to be completed. Only capital-intensive construction can satisfy the twin desires.

(2) designers' background. Architects and engineers are trained to design using predominantly conventional materials such as concrete and steel, which usually call for the use of equipment (see 11.8.1.1);

(3) registration. In registering contractors, government agencies insist on their possession of certain minimum items of plant (see 13.3.1), and contract-awarding agencies expect the use of machinery on projects;

(4) skills. The shortage of skills (see 11.2) and non-availability of testing facilities (see 10.5.3 and 10.5.6) are some reasons advanced for the insistence (in specifications) on the use of plant which can be relied upon to produce certain specific standards of work;

(5) contractors' attitudes. A report (1977) observed:

> "The local contractors, being businessmen, adopt technologies that benefit them most; they resort to the indiscriminate use of capital-intensive methods."[21]

(This point is not particularly important in its effect, since contractors are required to have plant anyway. But some contractors tend to rely on plant as a way of compensating for their own lack of technical knowhow or their unwillingness or inability to employ qualified managerial or supervisory personnel.)

(6) cost of labour. The current upward trend in wages (see 12.2.2) may price labour out of competition with plant. This has not yet been apparent because of increasing costs of acquiring or hiring and running plant, as well as the sluggish tempo of construction activity.

(7) national aspirations. Ultimately, what the government thinks is good for the nation becomes the most decisive factor. Despite the cost of using plant, and problems involved with it, government has not abandoned its desire to introduce modern technology into Ghana's construction industry. Since the nation or local contractors cannot acquire the key inputs necessary, the present policy is that:

> "Outside capital investors will be encouraged to team up with Ghanaians to ensure adequate supply of essential materials and equipment necessary for ... construction."[22] (See 5.4.4.2).

Local efforts would also be intensified:

> "The Bank for Housing and Construction will be encouraged to expand its plant pool facilities in all the regions."[23]

(8) external agencies. Finally, international organisations financing construction projects might insist on materials and technologies of a modern or conventional nature, regardless of the nation's own preferences.

Ghana's approach to technology has been pragmatic, making use of the most modern ideas whilst developing and propagating appropriate local technologies or experimenting in labour-intensive methods.

12.7. Intermediate Technology

With government's financial support and encouragement, the research institutions[24] have been engaged in the development of intermediate technology to match local materials such as the Tek Block Press for landcrete blocks (see 10.5.6) or to replace high technology such as the production of cement from local limestone deposits (see 10.3.2.1).

That few of the large volume of research results have been implemented in practice (see 10.5.1.2) is due not only to the non-availability of the results and/or lack of response from industrial entrepreneurs, but also because the "appropriate" equipment and tools such as the Tek Block Press have to be made by high technology, often from imported equipment or raw materials. Thus the problems hindering the high technology sector also tend to constrain their solution through the utilisation of appropriate technologies (see 10.6.(h)).

12.7.1. Distinction

A distinction should be made between labour-intensive construction technologies using conventional materials, and those using traditional or improved-traditional materials, since the skills required are different in each case. The former is referred to as "Labour-intensive Methods" and the latter as "Traditional Methods".

12.7.2. Labour-Intensive Methods

By labour intensive methods are meant construction methods in which, although conventional materials are utilised, no plant and equipment are used on site. These are employed on smaller public projects 1-2 storeys high and the majority of private sector projects[25]. The construction unit involved may be that of a commercial contractor, a self-help project team or a labour-only subcontractor.

Government's encouragement of labour-intensive technologies has been occasioned by one or more of the following reasons at any

particular time:

(1) economic reasons. In periods of severe balance of payments problems government has acted to promote labour-intensive technologies. For example, in 1970 it declared:

> "More realistic prices for imports and exports will stimulate ... the use of indigenous raw materials and labour in construction ..."[26]

To this end, government has made use of indirect taxation, prices and wages, and import control policies[27] (see 3.6.1-2 and 7.5.1-2).

(2) to relieve unemployment. When the level of unemployment was too high, government has supported the use of labour-intensive technology through persuasion, direction or incentive, as witness its policy in 1970:

> "In order to encourage the proper utilisation of our factor endowments in proportions that reflect their scarcity value, the Government will instruct executing agencies to give preference to labour-intensive rather than capital-intensive methods whenever such choices are technically feasible and economically reasonable ..."[28]

Another instance was its order in 1972 which forbade employers from laying off any of their workers without the written permission of the Commissioner for Labour[29] (see 7.8.2.2).

(3) for political reasons. The infusion of a patriotic spirit in the youth was one of the motives behind the establishment of the Builders Brigade (1957-1966), an organisation which used labour-intensive methods to build government projects all over the country (note that this was during the period when government was actively industrialising the economy and construction industry) (see 6.4.2.1 and 12.4.1-2).

This attempt at large-scale labour-intensive construction failed economically because[30]:

(a) the Brigade was used to absorb the government's political supporters regardless of skill;

(b) the managers did not possess the expertise needed to effectively marshal large numbers of workers; and their job was made harder by the unorthodox, mainly political criteria used in recruiting personnel. Political patronage made discipline difficult to enforce; and

(c) several clients did not pay for services it rendered to them.

The Brigade was dissolved in 1966 (see 6.4.3), thus ending government's direct involvement in labour-intensive construction[31], except in self-help projects where the Department of Social Welfare provides extension services (see 7.8.3).

12.7.3. Traditional Methods

Traditional methods of construction are used in Ghana's rural areas and the 'unauthorised' suburbs of the cities. The materials and related skills differ from one part of the country to another, depending on the local climate and customs[32]. People in the rural areas have the skills to build their own dwellings and other structures and may also cooperate to build communal facilities or take turns building one another's dwelling. In addition, there are teams of skilled tradesmen in traditional building who offer their services to clients for a fee. Thus building in this sector may be either non-monetary, subsistence, or monetary but informal (see 4.4.2).

Together with its attempts to modernise methods of construction, government intended making the best use of traditional techniques and materials. In its housing programme,

> "Government will make the greatest use of the skills already acquired by the rural people to build houses for themselves by providing technical assistance ..."[33]

It would limit its involvement in the rural housing sector to technical advice to achieve improvements in durability and strength at reasonable costs. This was both economically and administratively expedient, and

also a means of preserving the best of traditional construction methods. (Thus government has adopted a 'growth with equity' approach to housing.)[34] (See 5.3.2.2).

The major obstacles to the use of traditional and rationalised traditional construction methods are the preference by the rural folk of conventional materials and the weakness of extension services needed to propagate improvement measures. The former has, particularly, spurred the rapid decay of traditional skills, leading also to an increase in demand for construction technologies and hence skills of a conventional nature, placing strains on that part of the industry (see 4.4.2; 7.8.3 and 10,6(a)).

12.8. Conclusions

The type of technology used on construction projects is determined not only by economic criteria or by the existence of certain procedures preventing the introduction of some techniques, but also by the preference of clients, as well as government policy, influenced by circumstance and its perception of progress. In this field, some of the issues that merit careful attention include:

12.8.1. Time

The question of technology necessitates a dynamic approach: it is not so much what is possible or needed now, as what might be feasible or needed in future. Whereas, at present, or in the medium term, it might be advisable to encourage labour-intensive techniques due to their cheapness and employment-generating potential, future needs might call for a different strategy. For a country, the best long-term approach is to adopt a mix of techniques which will enable the industry to take advantage of technological progress and to increase its adaptability. It is, obviously, unwise to advocate the creation of a completely moribund, even if not necessarily backward, industry, unable to advance

with the times.

12.8.2. Sectors

In pursuit of the point raised in 12.8.1, it is possible, after delineating the industry into sectors based on production methods, to identify areas where particular techniques can best be encouraged. Thus, using the matrix developed in 4.4.2 as a basis, it would be wise to use high modern technology in the international and conventional-large subsectors but unwise to do so in others. It is also most pertinent to use labour-intensive methods of various kinds in the conventional medium or small subsectors and the informal sector. The nation should adopt a clear policy regarding the subsectors in which it would encourage the use of capital- or labour-intensive methods of various levels of sophistication.

Thus, technology should be approached on the basis of the whole industry and with long-term considerations, instead of concentrating on a particular sector or technique in relation to short-term requirements.

12.8.3. Present Resources

The mix of technologies a nation can adopt is determined by its resources in terms of finance, especially foreign exchange; skilled personnel and types of skills; attitudes and preferences; and procedures. Since it takes time for any of these to be altered significantly, it is not likely that real change in technologies can occur quickly. Nor is it advisable to allow theoretical considerations alone to govern the choice of technology. In particular, industrialised building might be considered here: where a nation already has facilities for such types of construction it is improbable that it will heed any advice to adopt labour-intensive technologies which might mean shutting down the industrialised building works. Thus, it is wisest to

seek strategies that enable present resources to be used most effectively and efficiently, rather than those that advocate or necessitate radical changes.

12.8.4. Appropriate Technology

For each country, the appropriate technology for construction will be a mix of techniques depending on its history, its economy, its level of development, personal and governmental attitudes and preferences, and prevailing resources. What is appropriate will vary with time and circumstance, as well as government's policy. (Thus 'appropriate' technology, as used in this thesis, is not necessarily labour-intensive technology, nor 'intermediate' technology.)

12.9. Notes and References

1. For a detailed consideration of productivity see for example, Bishop, D., Productivity in the Construction Industry, in Turin, D.A. (ed), Aspects of the Economics of Construction, George Godwin, London, 1975, pp. 58-96.

2. Government of Ghana, Budget Statement 1973, Ministry of Finance, Accra, September 1972.

3. This accounted for the particularly low figure of output per man in 1972 (see table 12.1).

4. For example, the present situation in Ghana is alarming: wages are insufficient to ensure the ordinary survival of most workers: "In Accra, the impoverished majority spend a quarter of their daily wages just getting to and from work. They must spend three days' wages for a kilo of meat and a day's wages for a tin of condensed milk or a kilo of fish or poultry. Even on the rare occasions that they are available, sugar, flour, tinned fish and soap are beyond an unskilled worker's income." - Fuller, R., Paying a Rising Price, in Development Forum, Vol. VIII, No. 2, March 1980, p. 16.

5. In recent times, such calls have been replaced or accompanied by demands for basic needs. For example, Mr. T.A. Bediako, General Secretary of the Ghana National Association of Teachers, observed that: "... increase in salaries alone would not solve the problems of workers ... Premium should rather be placed on the improvement in the supply of basic goods and services." - More Pay Not Enough, Daily Graphic, 11 February 1980.

6. Government of the Gold Coast, The Development Plan, 1951-56, Accra, 1951, p. 21.

7. See Abrams, C., Housing in the Modern World, Faber and Faber, London, 1964, p. 166.

8. See Government of Ghana, An Official Handbook 1975, Information Services Department, Accra, 1976.

9. The factory's most pressing need in this sphere are mobile cranes for transporting and erecting components on site.

   New agreements for supplying replacement machinery and spares were being negotiated at the time the author visited the factory in April 1979.

10. There are 18 Soviet technicians and consultants: the problem lies with obtaining Ghanaian professionals, of which there were only one architect and two mechanical engineers.

11. It is entrusted with the development of Community 3 at Tema (a sector of the industrial township) and was generally expected to relieve the urban housing shortage.

12. The government acquired 55% share in the United Africa Company-owned concern in 1972 and took it over when the private company opted out of its share in 1979.

13. The factory has a large backlog of orders from such institutions: 150 houses for the Upper Region Agricultural Programme alone, of which it had built only 10 by April 1979. See also 10.5.3.

14. This figure was quoted by the Resident Representative of ATP in Accra, Mr. Y.A. Kwabi, when interviewed by the author.

15. Another organisation of sawmillers and plymillers, Naja David Ltd. at Kumasi, started the production of timber house systems in early 1980.

16. The research institutions have also not ventured into this area as yet. (See 10.5.1.1-2).

17. Government of Ghana, Five Year Development Plan 1975/76-1979/80, Part II, Accra, 1977, p. 439.

18. Government's published programmes are often not followed, nor are they in sufficient technical detail to be useful aids in component manufacture. (See 8.3.2-4).

19. Scott Wilson Kirkpatrick and Partners, Report on the Contracting Industry and Quarry Facilities in Ghana, Ghana Highway Authority, Accra, 1975.

20. There are no facilities for the formal training of operatives or mechanics of construction equipment in Ghana. Such training is mainly through apprenticeships.

21. Ministry of Works and Housing, Report of the Working Party on Guidelines for a National Housing Policy, BRRI, Kumasi, 1977, p. 25.

22. Government of Ghana, op. cit. (ref. 17), p. 134.

23. Ibid., p. 135.

24. See Research Institutions: Section 10.5.1.

25. Private sector projects, especally with individuals as clients, are particularly labour intensive. Buildings up to 5 storeys tall (reinforced concrete framed) are produced without the use of a concrete mixer or a hoist.

26. Government of Ghana, One Year Development Plan, July 1970-June 1971, Accra, 1970, p. 13.

27. Duties on imported capital goods (except agricultural equipment), price and wage freezes and import licensing.

28. Government of Ghana, op. cit. (ref. 26), p. 147.

29. See Chapter 7, Department of Labour.

30. See Jones, T., Ghana's First Republic 1960-66, Methuen, London, 1976, p. 224.

31. Similar organisations were formed by succeeding governments: the National Service Corps (1969-72) and the National Reconstruction Corps (1972-1979), but these were mainly utilised on non-contract rural projects. The major criticism against them, which led to their eventual dissolution, was the high component of salaries of administrative and senior personnel and the political patronage in appointments to key positions.

32. Design concepts, materials, decorations and methods of construction differ. For example (adopting a very rough categorisation - north-south), in the north houses are round, built and roofed in mud, reinforced with sticks or unreinforced, depending on the vegetation and skills. In the south, walls are of lateritic mud, usually reinforced with sticks, although the unreinforced 'Atakpame' style is also popular. Roofs are of thatch, the details of construction varying from place to place: the covering ranging from grass to woven palm branches and slit bamboo stems.

    The roundness of the northern house is said to be a way of limiting the surface area exposed to the hot exterior. To further this aim, houses are built close to one another, and the settlement itself is circular in shape.

    Each traditional house in Ghana has several rooms to accommodate the extended family (in recent times for rent), and each has a walled courtyard providing space for outdoor domestic activities like food preparation, which are part of Ghanaian culture. The wall acted as protection against enemies and wild animals in the past.

    See Kyei, K.G., The Ghanaian Culture and Architecture, in The Consultant, Vol. 2, No. 1, May 1977, pp. 17-18; and Ministry of Works, op. cit. (ref. 21), pp. 15-16.

33. Government of Ghana, op. cit. (ref. 17), p. 422.

34. A detailed account of housing needs and provision in Ghana can be found in Appendix C.

CHAPTER 13

CONTRACTORS

"... small contractors in most developing countries ... find themselves caught up in a succession of interlocking vicious circles: to obtain a contract they need fixed assets, but to obtain these they need credit, which is not forthcoming unless they are on a government tender list or already have a contract. To carry out contracts efficiently they need a reliable permanent labour force which they cannot afford unless they have some continuity of work. But they will only be awarded contracts if they can prove that they are efficient in the completion of jobs they have already done ... Certain developing countries have attempted to assist the development of the indigenous contractor which provide training to small contractors and assistance in obtaining contracts ... However, these efforts are the exception rather than the rule and the tendency has been to ignore the small contractor's problems."

- Edmonds, G.A., The Construction Industry in Developing Countries, International Labour Review, Vol. 118, No. 3, May-June 1979.

"Every business has its own built-in problems but in the Ghanaian context, contractor or anything to do with contractors has assumed pejorative connotations. This situation developed over so many years when the building and road construction business were invaded by opportunists whose only objective was to make fast money ... contracts were given to so-called contractors who did not have any knowledge as to what even a slide rule is for and did not have the requisite equipment to undertake jobs. When finally market women left their stalls and jumped on the bandwagon ... the 'contractors' profession went down hill and attracted a lot of opprobrium from the public."

- Graphic View, Contractors and Public Works, Daily Graphic, April 21, 1980, p. 2.

13.1. Introduction

The development of indigenous contractors is sometimes regarded as the crucial element in any programme for improving developing countries' construction industries (see 5.4.4.1). Even where a broad approach is advocated it is usually one of the proposed measures. (See most of

Chapter 5 and tactic (8) of the 'Synthesis', 5.6). Measures suggested in a strategy to develop local contractors include: provision of financial assistance (see 5.4.3.3); provision of stable demand in appropriate types and sizes of construction goods (see 5.4.4.1); rationalisation of contractual procedures (see 5.4.3.1 and 5.4.4.1); provision of training, especially in management, including informal training, for example, using foreign firms (see 5.4.4.2); encouraging small contractors to merge (see 5.3.2.1 and 5.4.3.3); and supporting the formation of contractors associations which could help individual members (see 5.4.3.3).

This chapter considers the attempts to develop local Ghanaian contractors, identifies specific measures, which include all those mentioned above, assesses their results, and outlines factors which supported or hindered their implementation. It starts with the history of the contracting sector in Ghana, considers the characteristics of firms in Ghana and discusses the role government has played in the sector, as well as that of other institutions.

13.2. History

Before independence demand for construction in Ghana was on a limited scale; the PWD built public bungalows and offices, expatriate contractors executed the larger projects such as harbours, and local firms, which were then mostly informally organised labour-only contractors, did private sector projects.

Total demand for construction was increased suddenly and tremendously as the government, in the late 1950's and early 1960's, launched a massive development programme involving the construction of factories, schools, hospitals, bungalows and roads[1] (see 6.4.2; 6.4.2.1-3). This boom drew expatriate firms to Ghana and spawned the evolution of indigenous contractors[2] (see 3.4).

There were few qualified Ghanaian professionals and technicians in construction; most educated persons preferred the old professions such as law, medicine, the priesthood and teaching. Moreover, the skilled personnel were in the civil service which was prestigious at the time, and held promises of secure, lucrative careers. Persons entering construction were, therefore, speculative entrepreneurs attracted by the profits they hoped to make.

Many expatriate firms left the country when the boom subsided, and balance of payments problems prompted the introduction of import and exchange control (see 6.4.3) which made it difficult for them to repatriate their profits. The few who wished to plough back their profits locally remain to this day.

Indigenous firms, owned and managed by persons with little or no knowledge of construction, are small in size, although they have become more numerous. The entry of professionals into construction is a recent phenomenon now actively encouraged by government, and some of the firms, though relatively young, are already able to compete with the largest and the best in Ghana.

The dearth of firms able to undertake projects of a large and sophisticated nature (International and Conventional Large) (see 4.4.2) has constrained the performance of the construction industry (see 6.5.4) and of late, government has supported the formation of joint partnerships between Ghanaian and expatriate firms (see 5.4.4.2 and 12.6.5(7)).

13.3. Registration

All enterprises operating in Ghana are required by law (the Companies Act of 1963) to register with the Registrar-General[3]. In addition, construction firms who wish to undertake public sector projects have to register with the Ministry of Works through AESC, GHA and PWD (see 7.3.2-5). Registration with the Ministry is also insisted on by the larger private client organisations

Firms are placed in categories indicating the type of projects they want to or can work on. The categorisation has changed over the years, and is different for each registering agency. Firms are now grouped into those working on: Roads and Minor Bridges, Special Bridges (GHA), General Building, Civil Engineering Works, Electrical Installations, Plumbing Installations and Supply of Materials (AESC and PWD).

Firms are also classified to indicate the size (by estimated cost) of construction projects they can undertake. Thus there are:

Financial	Class I	Over ¢500,000
	Class II	From ¢300,000 to ¢500,000
	Class III	From ¢100,000 to ¢300,000
	Class IV	Up to ¢100,000.

Although these ranges are subject to revision, they have remained unchanged for some time and have been overtaken by inflation. Few contracts cost less than ¢300,000 now, and in practice the two lower classes should not exist. For this and other reasons the registration of firms into these two classes has been suspended.

A contracting firm performing to a satisfactory standard can be promoted to a higher class on application. It is also possible for a firm to be demoted, althougn this seldom happens. Blacklisting of offending firms (doing sub-standard work, delaying or ceasing work on a project or engaged in fraud) is more common. It is not necessary for every contractor to start from the lowest grade, although most of them do.

13.3.1. Prequalification

The criteria for prequalification for a financial class include:

(a) number and qualification of personnel employed;

(b) plant and equipment owned;

(c) total value of fixed assets and working capital; and

(d) work executed in the immediate past.

These criteria act as a barrier to entry into contracting in many ways: the need to own plant and equipment and some funds hinders the entry of professional personnel; the requirement that the firm should have done some work already before being registered is ironical and usually poses difficulties since most contractors rely on the public sector for work (see 6.5.2). The result is that many of the firms in the books are those whose proprietors have evolved ways of registering without satisfying the criteria for prequalification (see also 9.6.7). Government has expressed the concern that

> "... with almost every contract award, the contractors concerned approach the import license authorities for allocation to import equipment, despite the criterion that qualification for contract award is the possession of the requisite machinery and equipment."[4]

A survey by the PWD (1975) of plant owned by the road construction firms on its register showed that few actually owned the plant required. Table 13.1 shows the results of this survey, with the number of plant required in brackets. The gap between the required and the

TABLE 13.1. PWD. Number of Contractors and Number of Various Equipment, 1975

Class of Contractor	Number Registered	Dozer	Scraper	Traxcavator	Roller	Grader	Tipper
I	12	13 (24)	19	27 (12)	40 (36)	23 (24)	134 (72)
II	14	2 (14)	1	19 (14)	10 (28)	5 (14)	52 (56)
III	67	2	1	23 (67)	24 (67)	24 (67)	81(134)
IV	85	3	0	29	29 (85)	21 (85)	105(170)

Source: Public Works Department

actual is considerable in many cases.

The situation is no different with the number and qualifications

of firms' permanent employees, fixed assets and working capital. For example, although the smallest road contractor (class IV) is required to employ a foreman, bookkeeper, surveyor and mechanic, as well as have a permanent office, few class IV firms have any permanent employees or an office worthy of the name. Government has pointed out that:

> "It has been observed that some contractors undertaking government projects do not keep proper accounts on their operations. It is an offence for a registered company not to maintain the proper books of accounts."[5]

Attempts to enforce the prequalification criteria have included the centralisation of the registration exercise in the Accra head offices of the agencies, and physical viewing of assets the contractor claims to own. These have, so far, been unsuccessful, and the contracting capacity of Ghana is much lower in practice than it appears on paper[6]: the criteria do not constitute as formidable a barrier as one would expect. (See also 9.4.4. and 9.6.7).

13.4. Number of Contractors

The list of contractors working in Ghana was first published in the Commercial and Industrial Bulletin in 1972[7]. After the fragmentation of the PWD into the PWD, GHA and AESC (see 7.3.1.4-5), each body started its own register. It is, therefore, difficult to ascertain the actual number of construction firms at present, since the same company may be registered, often using the same assets and employees' particulars, with more than one agency.

In 1972 there were 25 firms in Class I, 20 in Class II, 116 in Class III, 210 in Class IV, 16 Electrical Contractors and 209 Suppliers. Thus only 7 per cent of firms could undertake the larger projects (ie over ¢500,000) whereas 57 per cent could only take up work of not more than ¢100,000. Moreover, 42 per cent of all the firms, and all but 2 of the Class I firms, were based in Accra.

The figures in table 13.2 give an indication of the increases in

TABLE 13.2. AESC Registered Contractors, 1977 and 1978

	Year	Class I	Class II	Class III	Class IV	Electrical
Building	1977	27	71	376	577	210
	1978	32	79	428	681	241
Civil Works	1977	10	27	60	65	
	1978	14	34	63	79	

Source: AESC.

numbers of contracting firms over the years: only lists for the consecutive years 1977 and 1978 could be obtained and this only for AESC. The data show the largest annual increase was amongst class IV building firms, where 104 additional contractors were registered, an increase of 18 per cent. The numbers of building firms, as well as annual increases, were higher than their civil engineering and roads counterparts for reasons including the relative ease of entry into building contracting (see 13.3.1) and the greater number of building projects awarded each year.

By May, 1979 the number of contracting firms registered in Ghana was as indicated in table 13.3.

TABLE 13.3. Registered Contractors as at May 31, 1979

Agency/Category	Class I	Class II	Class III	Class IV	Total (Firms)
AESC: Building	32	79	428	681	1220*
Civil Works	14	34	63	79	
Highway Authority (Roads)	37	51	143	207	438
PWD: Roads	6	20	126	83	
Civil Works	7	12	54	26	
Special Building	3	3	11	4	
General Building	9	46	475	581	

* Not an arithmetic sum of Building and Civil Works firms, since some companies were registered in both categories.

Source: Prepared from lists obtained from AESC, GHA and PWD.

Considering the proportions of the various sizes of firms, 56 per cent of the AESC's building contractors could do work of value only up to ¢100,000, and only 3 per cent could undertake jobs over half a million cedis. Comparing these figures with the ratios in 1972 shows that whereas the proportion of small firms has remained roughly the same, though the number has trebled over the period, that of the largest firms has reduced. For the roads and special bridges contractors of the GHA, the proportions are 45 per cent Class IV and 8 per cent Class I, indicating a reduction in the proportion of small firms compared to 1972, and a maintenance of the level of large firms.

13.4.1. Expatriate Firms and Joint Partnerships

Expatriate firms, both those resident locally and those who come into work on one-off projects, have reduced over the years: in proportion, though not necessarily in total number. There has been much flux amongst them; some are new on the scene whereas others have been operating for decades. Table 13.4 indicates that most expatriate firms are amongst the largest: they dominated class I in 1972 although their proportion had reduced by 1979.

TABLE 13.4. Contractors Registered in Ghana, 1972 and 1979

Agency/Type of Contractor	Class I	Class II	Class III	Class IV
Ministry of Works (1972):				
Expatriate	15	3	2	-
Ghanaian	10	17	114	210
Total	25	20	116	210
Highway Authority (1979:				
Expatriate	5	1	1	-
Joint Expatriate-Ghanaian	3	-	-	-
Ghanaian	29	50	142	207
Total	37	51	143	207
AESC (1979: Expatriate	9	-	-	-
Joint Expatriate-Ghanaian	2	-	-	-
Ghanaian	21	79	428	681
Total	32	79	428	681

The ownerships of expatriate firms originate from Germany, such as Carl Ploetner; Italy, such as Michelletti Polla and Monta; Switzerland, such as A. Lang; Lebanon, such as Central Services; and England, such as Taylor Woodrow. Italian firms are the most numerous.

The government's indigenisation policy[8] excluded construction activity, (though it included the manufacture of cement blocks), in the sectors of the economy from which aliens were barred or Ghanaians required to have majority shares. Even more, government is now encouraging[9] foreign firms wishing to work in Ghana to team up with Ghanaian firms, provided only that the Ministry of Works and Housing scrutinises the terms of agreement to safeguard the special interest of the Ghanaian partner. The intention is to provide a link between the expertise and equipment of the foreign firm and the goodwill and local knowledge of the indigenous counterpart. This would:

(a) enhance Ghana's contractor capacity at the large or sophisticated project (international and conventional large) (see 4.4.2) end of the scale;

(b) reduce the incidence of foreign firms coming to work on one project and then demobilising their manpower and equipment after completion, displacing local workers and not enabling the country to benefit from their experience;

(c) promote the introduction of modern technology into Ghana's construction industry (see 12,6,5); and

(d) ensure effective training of Ghanaians at the operational and managerial levels.

A number of such partnerships have been formed and negotiations, at the initiative of either the Ghanaian or the foreign firm, are underway for the establishment of some more. The most intriguing of these firms is that owned by Taylor Woodrow and the Social Security Bank, a parastatal. (See 13.7.2.2).

13.5. Performance of Contractors

13.5.1. Progress on Projects

The performance of contractors working in Ghana can be studied by considering progress on some projects being undertaken. It was possible to obtain official reports on all the trunk and feeder road projects and a number of building projects. The remarks of the inspecting officers on progress on these projects are represented in table 13.5.

TABLE 13.5. National Feeder Road and Trunk Road Programmes, and some Building Projects in Accra. Progress Reports as at 31st December 1978. Remarks by Inspecting Official.

Remark	Feeder Roads (No)	Trunk Roads (No)	Buildings (No)
Satisfactory Progress	170	22	31
Slow Progress	82	11	85
Work abandoned due to lack of materials or plant	22	11	-
Work abandoned by Contractor	70	14	4
Terminated and Reawarded	10	-	1
Work not started	27	2	5
Work suspended	5	-	-
Contractor concentrating on another job	8	1	-
Work Completed	12	3	23
Total	406	64	149

Sources: From information obtained from Ghana Highway Authority, Accra, and Architectural and Engineering Services Corporation, Accra.

From the figures in the table (13.5) only 42% of feeder road projects, 34% of trunk road projects, and 21% of the building contracts were going on at a satisfactory pace.

Progress was slow on 20% of feeder roads, 17% of trunk roads and 57% of the building projects. Shortages of materials or breakdown of

plant had caused the abandonment of 5% of feeder roads and 17% of trunk road contracts, but none of the buildings. The major materials holding up trunk road projects were explosives and bitumen (see also 10.3.1.1), whereas those affecting the progress of buildings were cement, steel and aluminium sheets. The major constraint on feeder roads was plant (see also 12.6.2). The shortages of road construction materials were such that over long periods none was available in the country at all, whereas building materials were always obtainable, though in small quantities (see 10.3.1.1).

Contractors were, furthermore, more likely to abandon road projects when they found it difficult to obtain spare parts or plant, or when shortages of materials hindered the effective use of plant and equipment which had high hire costs (12.6.3). Thus, that fewer building projects were progressing satisfactorily and none had been abandoned is an indication more of the difference in technologies and hence production constraints rather than the lower competence of building compared to road contractors.

Some contracts (10 feeder roads and 1 building) had also been terminated or suspended (5 feeder roads) by the awarding agencies for reasons such as excessive delay and prolonged absence of the contractor from the works without reason.

That work had not started on some awarded contracts (27 feeder roads, 2 trunk roads and 5 buildings) and that some projects were left unexecuted while the contractor worked on others (8 feeder roads and 1 trunk road) indicates both the inadequate contracting capacity in the country and the willingness of contractors to tender for and accept jobs, and of clients to award them, regardless of their workload (see 9.6.6-7). Most of these feeder road projects were in the Upper Region where contractors are fewer. Two trunk road projects awarded in April and June, 1978 had not started because the contractors' joint Ghanaian-expatriate firms were insisting on a review of the contract sum because of the

devaluation of the cedi later that year.

13.5.2 Dates of Completion

Since progress on many projects was slow and since several contracts had been suspended, terminated, abandoned or not started, most of the projects in Ghana were behind schedule. The dates of completion obtained from the progress reports are presented in table 13.6 for all the trunk roads and 40 of the building projects on which such dates were indicated.

TABLE 13.6. Estimated Dates of Completion for some On-going Projects as at 31st December, 1978

Year	Trunk Roads	Buildings	Year	Trunk Roads	Buildings
1973	1	-	1979	6	1
1974	4	5	1980	9	1
1975	10	7	1981	2	-
1976	12	3			
1977	7	15	Completed	3	2
1978	10	6	Total	64	40

Sources: From information obtained from GHA and AESC, Accra.

The data (table 13.6) show that at the end of 1978, 44 (69%) of all trunk road projects and 36 (90%) of the 40 building projects considered were delayed. Some were up to five years behind schedule. These delays had several socio-economic implications: users are deprived of the utilisation of the works; scarce capital is tied up in unfinished, unusable projects; costs rise due to contractors' inefficient use of resources, inflation, deterioration of the building fabric and necessary repairs. Most important, the non-completion of on-going projects and the continued inception of others accentuate the materials

and plant supply problems, making it even more difficult to execute contracts (see 7.3.1.3).

But contractors continue to be blamed for delays on construction projects[10], although most of the issues giving rise to the situation are beyond their control.

13.5.3. The Environment

The nature of the contractor's operating environment affects his efficiency to a large extent (see 9.5.6.4). When materials and equipment needed for production are scarce, output is constrained, and firms cannot make optimum use of their manpower. The present situation in Ghana's construction industry also involves contractors in additional, and usually abortive, efforts such as lobbying for materials (see for example 10.3.2.1-4) and plant (see 12.6.2) and chasing certificates (see 9.7.3), which increase overheads and reduce profits[11].

13.5.4. Project Management

The entrepreneurial ability of a firm's managers, if well-applied, can perceive opportunities and advantages even in difficult situations[12]. (See 15.4.3)

The larger firms prepare and use site layouts, programmes of construction, materials schedules, cash flow and financial plans and site cost control systems, incorporating minimum levels of site output for broad types of work. The small firms, however, cannot use these management techniques, and had the environment of Ghana's construction industry been any better, this would have meant double-handling of materials, delays in delivery of materials, inefficient site production, high costs and stunted growth of the firms.

However, theoretical management techniques appear inadequate as an effective response to the present system. For example[13]:

(a) the pre-construction period is usually too short for site layouts

and construction programmes to be prepared (see 9.6.7);

(b) drawings are usually inadequate, nor are designs sufficiently finalised to permit programming and scheduling (see 9.5.2);

(c) when programmes are prepared, materials shortages often throw them out of gear (see 13.5.3); and

(d) delays in payments by clients (see 9.7.1) and rapid increases in prices (see 7,7.2) disrupt cash flows and financial plans.

The more knowledgeable firms have become selective in the types of clients, awarding agencies and consultants for whom they work, and the number of projects and their geographical location, they undertake at any time. The public-owned State Construction Corporation is instructed to take on the least profitable and most unfavourably located projects. The small contractors take on such jobs out of ignorance and desperation. (See also 9.5.6.3).

13.6. Characteristics of Contractors

13.6.1. Dichotomy

The above section (13.5.4) and previous chapters of this part of the thesis (Part III) hint at a dichotomy of contracting firms in Ghana. Generally, firms can be divided into the larger ones (classes I and II) and the smaller ones (classes III and IV). Broadly, the larger companies are more knowledgeable and are headed by or employ qualified professionals, although a few smaller firms have graduate builders as proprietors. The larger firms are as competent as can be expected of firms of similar size in other parts of the world. The smaller ones are not so competent and are owned and managed by proprietors with no knowledge of or qualification in construction (see 13.2). Such firms are too small to afford the full-time services of qualified professional staff.

The larger firms have a monopoly over contracts worth over half a million cedis (see 13.3) and can also pick and choose from the rest of projects[14]. They can obtain better terms of credit from the banks

and materials suppliers, and also import directly items of equipment (see 10.7.2). Moreover, with their ability to offer a longer tenure of employment and, usually, better remuneration, they cream off the better supervisory and other skilled personnel, leaving the small firms to contend with the rest[15] (see 11.3.2).

These are a few examples of the ways in which the existence and operations of the larger firms impede the growth or threaten the survival of the smaller ones. Not only is the ability of the former to respond to the present difficult situation greater, but the methods adopted in this response have unfavourable ramifications for the latter.

13.6.2. Commitment

The difference between the larger and the smaller firms is further manifest in the attitudes of their owners and managers to construction[16]. Whereas the former are dedicated to, and perceive their major field of activity to lie in, construction activity, the latter are usually owned by proprietors with no intention of remaining in the field for too long: they own businesses other than construction[17].

Thus, the larger firms tend to expand vertically: any diversification involves the establishment of quarrying, joinery, blockmaking or similar facilities, or the acquisition of plant which they can also hire out.

Most of the smaller firms are registered as "Trading and Construction Companies", "Trading, Transport and Construction Companies" or just "Trading Companies". They enter, and remain, in construction only when prospects for profits are good and divert profits from construction into other fields of activity, particularly commerce, where returns are quicker and easier to make. Their construction units are therefore transient, with reliance on casual employees and emphasis on cost reduction, sometimes at the expense of quality of workmanship and

materials[18] (see also 3.7).

Some small firms are owned by tradesmen or technicians, experienced in building and committed to building; but often these firms are starved of capital and unable to expand their operations.

13.6.3. Management Style

Whereas the larger firms are more formal, bureaucratic and, to a large extent, de-personalised, the influence of the proprietor of the small firm is all-pervasive within the firm: he purchases materials, pays workers, chases certificates, lobbies for jobs and supervises his 'foremen'. The extent of the firm's operations is accordingly limited by his inability to perform all these functions effectively.

That entrepreneurs of construction firms prefer to take effective control of all important, especially financial, aspects of their operations is due to their suspicion of all persons other than their closest relatives[19]. Thus they are inclined to put their relatives in places of authority in the firm, irrespective of their qualifications for, or interest in, the job. This is, in itself, not bad; some studies have shown that entrepreneurial and family firms tend to be more successful than those managed by employees with no stock in the company[20]. Moreover, most construction firms in Britain are family-owned and management styles are paternalistic[21].

Thus, provided that the trusted persons placed in high positions have the requisite training, the firm would have a bright future. That some relatives of contractors in Ghana are undergoing training as professionals and technicians is a hopeful sign.

13.6.4. Mergers

Most construction firms in Ghana are sole proprietorships: those registered as limited liability companies are so only in name, the

so-called shareholders usually exist only on paper and have no stakes in the firm and no say in its operations. Most of the firms have remained small for decades, both as a result of a deliberate desire by their owners to keep them small, and their inability to grow (see 13.6.3).

The continued dearth of large firms, as well as the greater success of larger firms in coping with the present difficulties in the operating environment (see 13.4 and 13.6.1), seems to make it advisable that the small firms merge or are encouraged to merge (see 13.1). But few mergers have taken place amongst contruction firms in Ghana because:

(a) most Ghanaians are ignorant of the way in which formal partnerships work. Informal relationships are smoother and longer-lasting than rigid arrangements and traditional cooperatives are more enduring (see 11.2.4 and 15.9).

(b) the absence of laws on intestate inheritance hinders the formation of mergers. Under customary arrangements, the family assumes direct ownership of a person's property on his death, and they may do as they please with their portion of a firm's equity and assets. Some have been known to withdraw suddenly from partnerships, creating difficulty for the surviving partner(s) of the firm; and

(c) there is deep suspicion and mistrust among Ghanaians of one another. (see 13.6.3) This is even more marked between persons of different backgrounds. Thus the well-to-do entrepreneur is not likely to enter into business with a qualified professional.

The few partnerships and mergers that have remained intact are those between qualified professionals. Even among these persons clashes of personality have led to the dissolution of some firms.

13.7. Contractor Development

Government's attempts to increase contracting capacity in Ghana have taken three forms:

(a) direct involvement

(b) support services, and

(c) encouragement.

13.7.1. Direct Involvement

The involvement of the government in the execution of construction projects started with the PWD and, passing through phases which saw the formation of the Builders Brigade (see 12.7.2), culminated in the PWD, GHA and the State Construction Corporation (see 7.3.1.5-6). Some departments and parastatals have their own construction units undertaking small works and maintenance, such as the Armed Forces' Works Services Engineers and the Maintenance Units of the universities. There is also the (direct-labour) State Housing Corporation, but the State Construction Corporation is the only state-owned commercial contracting organisation.

13.7.1.1. State Construction Corporation (SCC)

The State Construction Corporation (SCC) was formed in 1966 as a commercial, profit-making and self-supporting organisation, to:

> " ... undertake, plan, carry out, construct, execute, improve, administer and manage, both in Ghana and elsewhere, all kinds of construction projects and civil works, whether public or private or otherwise, ... to manufacture, ... or in any manner transform clay, wood, stone, marble, cement, ornamental products;..."[22]

It has quarries, carpentry and joinery shops, precast concrete and blockmaking units and a large plant pool. It is one of the largest construction organisations in Ghana, operating on a nationwide basis with regional branches, and undertaking both building and road projects.

13.7.1.1.1. Aims

In establishing the SCC, government's aim[23] was to have

(a) a Ghanaian construction organisation capable of competing with the existing expatriate-owned large firms and able to execute

construction projects of any size in any part of the country;

(b) a public organisation which, through realistic estimating, would act as a stabilising force in the construction market and break the oligopoly of the large foreign firms; and

(c) a construction organisation which could be called upon by government to undertake any job anywhere in the country at any time, especially in case of emergency.

13.7.1.1.2. Operations

The SCC receives no preferential treatment. It operates like any other construction firm in Ghana and is subject to all the constraints faced by such firms, including allocation of materials and payment for work done (see 13.5.2-4). As a public-owned enterprise, the SCC faces further problems: there is considerable administrative interference in its operations (see also 7.3.5.1).

It does not have complete control over the projects that it undertakes: it is often called upon by government to take up work that no private firm wishes to do, or projects that are needed as a matter of urgency or emergency (see 13.5.4). It executes about 60 per cent of all public projects[24].

The SCC's financial problems have increased as public clients have delayed payments due to it. In May, 1979 central government alone owed it some ¢11 millions[25].

Nor are the corporation's manpower policies entirely in its own hands. In May, 1979, it had 13,000 employees, 4,000 of which the management reckoned to be redundant[26]. These were mostly unskilled persons or those in non-essential skills such as steel-bending. But government refuses to allow it to lay off its workers, although its projects are not spared during unilateral suspensions of public projects (see 6.5.2).

The corporation's objectives are usually blurred, the economic with the social. Until 1976 it made losses on its operations each year[27]. This vagueness or non-definition of its real objectives notwithstanding, the SCC is the subject of frequent criticism by government and the public.

To a large extent the SCC has achieved the aims set for it: it has constructed most of Ghana's more sophisticated structures and has undertaken a road project in the neighbouring Republic of Togo.

13.7.1.1.3. Potential

Some specialist portions of the SCC's contracts are sublet. Hence private subcontractors do plumbing and electrical installations and terrazzo works, among others. There is no comprehensive scheme under which these small contractors are trained during their association with the SCC. This is a potential that is not realised. At the moment it is only hoped that the corporation will be an example to the smaller indigenous firms. The difficulty of arranging formal training for contractors (see 11.7.2.1) can be compensated for by making use of the opportunities provided on the site, especially where main contractors can pass on some knowledge to the smaller ones.

13.7.2 Support Services

The only form of formal support services that contractors in Ghana are provided with is offered by the Bank for Housing and Construction. Small contractors may also be given advice by the AESC, GHA or PWD, or by private professional consultants on an informal, non-obligatory basis (see 9.5.6,2 and 9.5.6.4). The Civil Engineering and Building Contractors Association, to which most contractors in Ghana belong, also acts as a pressure group, protecting and promoting the vital interests of all contractors.

13.7.2.1. The Bank for Housing and Construction (BHC)

The Bank for Housing and Construction (BHC) was set up by the government in 1973 to attend to the special needs of the construction sector. It operates as a commercial (accepting savings from depositors) and development (financing projects) bank, its functions consisting broadly of[28]:

(a) providing mortgages for developers and investing in public and private development projects on its own or in partnership;
(b) offering pre-financing loans to contractors;
(c) organising training for contractors and their employees; and
(d) investing in enterprises which produce or provide the special needs of contractors.

13.7.2.1.1. Work

BHC's mortgages (up to 80 per cent) are offered to customers satisfying the normal conditions such as income, age and a satisfactory saving habit. By the end of the 1977/78 fiscal year it had given 265 mortgages valued just over ¢8 million[29]. The decree establishing it laid stress on the BHC's undertaking projects that would promote tourism[30]. Its investments in commercial projects have, therefore, mainly been in the leisure industries such as hotels and beach resorts. It has also helped finance social projects on behalf of government, parastatals or district councils.

Such efforts to enhance demand for construction is as far as the BHC goes in trying to ensure that work is available for contractors. Even here, however, it does not influence the client's choice of a contractor.

The use of rigid, orthodox conditions in considering mortgage applications, and the rigorous tests of feasibility in appraising commercial projects have limited the impact of the BHC's loan-giving and investment operations on total demand for construction activity.

Furthermore, its operations are not evenly distributed. Greater Accra (82%) and Ashanti (5%) had almost all its mortgage loans by 1978. The Northern and Upper Regions did not have any of such loans. Moreover, much of the mortgages (65% by 1978) are used to purchase existing facilities rather than initiate new work.

13.7.2.1.2. Aid to Contractors

The BHC offers financial assistance to contractors on terms that are more liberal than those of the commercial banks. Its service is, however, not without certain conditions. It offers:

(1) hire-purchase facilities under which contractors are assisted to acquire plant;

(2) pre-financing loans.

13.7.2.1.3. Qualifying for a Loan

To qualify for a prefinancing loan the contractor must be a duly registered firm (see 13.3) and must have won a contract from central government, a department, parastatal or reputable private organisation. The bank examines the firm's past record, its assets, the type of project and the contractor's competence to undertake it and the profitability of the project, and assesses any necessary additional support service that should be provided to the firm. BHC would also, if it is a public project, ascertain that it is listed in the estimates (see 8.3.2).

Finally, and most important, the client and the contractor should agree that all payment certificates are prepared in the joint names of the contractor and the bank. In effect, the bank becomes a 'partner' in the contractor's enterprise for the duration of the project.

13.7.2.1.4. Advances

During the execution of the project the contractor only obtains advances from his loan allocation on presentation of invoices, payroll

sheets and special requisitions, and all honoured interim certificates are paid directly into the account opened for the project with the BHC. Thus the bank manages the contractor's funds for him, paying out profits only at the end of the project. This arrangement makes it unnecessary for contractors to put up collaterals against loans.

The scheme is highly centralised: it is necessary for contractors to present their relevant documents to the bank's offices in Accra, practially each time they purchase any materials, but at least once a month - to collect the advance for wages. This poses difficulty and expense to contractor-customers of the bank.

13.7.2.1.5. Appraising the Scheme

Despite the safeguards, the system failed to work. Some contractors succeeded in having payment cheques on interim valuations issued directly to them, and others who had direct loans to purchase vehicles or equipment defaulted in payment. By early 1979, the bank had exhausted its revolving fund for aiding contractors: the scheme was suspended. Efforts being made to recover some of the outstanding debts are proving unsuccessful. The claims made by many contractors that they owned certain assets have turned out to be fraudulent (see 13.3.1), and the bank cannot resort to the final sanction of auctioning the property of defaulters.

The scheme is under serious review, and among the measures being considered are: more stringent selection of contractors, based on creditworthiness and efficiency, insistence on some form of collateral, and legally binding agreements with clients to pay sums directly to the bank.

13.7.2.1.6. Reasons for Failure

Some of the reasons for the failure of the bank's scheme for

providing financial assistance to contractors are:

(a) the non-creditworthiness of contractors. Ghanaian contractors have established an image of conspicuous consumption; it is not uncommon for loan advances to be diverted to other uses (see also 13.6.2);

(b) the inefficiency of contractors. Some contractors made losses on their projects and have been unable to repay their loans (see 13.5.1-3).

(c) the lack of control in the client organisations, which made it possible for normal procedures to be flouted (see 8.3.2-3 and 9.6.7), and lack of commitment of clients to contractor development;

(d) the inadequate provision for the entrepreneur's personal needs. The payment of profits to firms only at the end of the project (13.7.2.1.4) ignored the reality of the proprietor's day-to-day needs. Many small contractors rely on interim payments to meet their personal expenditure[32]. The previous arrangement was almost an invitation to contractors to withhold payments; and

(e) the BHC's high rate of interest. The bank charges contractors the same rate of interest as the other commercial banks (18.5% in March-May, 1979, which contrasts with 10-15 per cent profits contractors said they could make on projects)[33].

As contracts overrun, or as interim payments due to the contractor are delayed, cumulative interest charges on outstanding loans become considerable, further limiting the ability of the contractor to pay.

13.7.2.1.7. Training

The decree establishing the BHC enjoined it to

> "... endeavour so far as practicable to develop and promote improvements in building skills of building contractors and to promote efficiency in the construction industry generally."[34]

But the bank has not been active in the field of training. The only

scheme worthy of note is a course for plant operators it ran in conjunction with GHA. It complains that funds that should have been provided by government for training have not been forthcoming. Its activities in this sphere have been limited to the advice on managerial matters offered by its professional employees to contractors. Until early 1979 it had a World Bank consultant in construction management. Because of the large number of contractors and the inadequacy of staff, most of whose time is spent trying to collect outstanding loans from contractor-customers, the BHC's efforts have had limited impact.

On some occasions the bank has seconded some of its qualified staff to its contractors, to work on particularly sophisticated projects as resident engineers or site managers.

13.7.2.1.8. Plant Pool

Another aspect of the bank's support services is its plant pool in Accra from which contractors can borrow key items of plant and equipment (see 12.6.2). Plans are afoot to open a similar pool in each regional capital, and the facility in Kumasi is nearly completed.

13.7.2.1.9. Industrial Development

The BHC, in seeking to promote efficiency in construction, has invested in enterprises producing the industry's more vital and more scarce resources, especially those for which the minimum levels of investment are substantial. Tables 13.7 and 13.8 show a list of such enterprises, the proportion of the bank's equity shares ownership, the amount it has invested and the size of its loans. In addition to these, it has provided loans for a number of timber, terrazzo, block-making and other constructional materials industries.

TABLE 13.7. Joint Venture Projects Promoted by the Bank for Housing and Construction as of 30th June, 1978

Name of Company	Sector of Activity	Equity Amount ¢	Equity %	Loan Amount ¢
1. Plant Pool Limited	Construction	3,000,000	60	2,400,000
2. Kas Products Limited	Quarrying	214,990	60	1,354,530
3. Kumasi Warehouse	Warehousing	27,740	70	358,000
4. Redco Limited	Estate Housing			
5. Rids Construction Limited	Construction			

TABLE 13.8. Joint Venture Projects Promoted by other Institutions and in which the Bank for Housing and Construction Participates

6. Saltpond Ceramics	Ceramics	1,000,000	4	—
7. Fulgrit Asbestos	Asbestos	52,000	4.3	—
8. Precast Spun Concrete Products	Concrete	232,220	55	844,440
9. Ready Mixed Concrete	Concrete	104,460	60	348,190
10. Amalgamated Quarries	Quarrying	587,214	25	559,434
11. Buoko Quarries	Quarrying	6,670	60	98,390
12. Tesano Terrazzo Tile Factory Ltd.	Ceramics	25,420	25	543,697
13. Prefab Panel Factory	Housing	50,000	5	—
14. Prampram Brick and Tile Limited	Brick and Tile	761,625	15	—
15. Golden Beach Resorts	Hotel	150,000	15	250,000
16. Ghana Stone Quarry	Quarrying	204,000	51	588,251
17. National Trust Holding Co. Ltd.	Stock-Brockerage	250,000	Share ownership by instalment	

13.7.2.1.10. Problems

The bank's difficulties include:

(a) its inability to obtain long-term funds. Its reliance on commerical banking and other conventional sources of money at high interest prevents it from playing a more decisive role as a development and contractor-supporting bank;

(b) point (a) is further amplified by the irregular nature of repayments of loans granted its borrowers, contractors and industrialists, and the high burden of bad debts (see table 13.9);

(c) following from point (b), the need for its employees to follow up loans to ensure that they are not diverted to other purposes, and also to collect overdue repayments, overstretches the bank's executive resources and detracts from the effective use of the special expertise of the qualified personnel; and

(d) the bank has no premises of its own. This is ironical for a bank so much involved with construction. Its activities, highly centralised in Accra (although it has a branch in Kumasi), are carried out in widely scattered buildings, calling for much movement since the country's telephone system is unreliable, and avoidable waste of valuable staff time and transport expenses.

13.7.2.2. Social Security Bank (SSB)

The Social Security Bank (SSB) was formed by the Social Security and National Insurance Trust, the organisation which administers national insurance and pension funds in Ghana. Formed in 1978, the bank has exhibited particular interest in the construction industry. It has entered into partnership with Taylor Woodrow (Ghana) Ltd. to form a construction firm (see 13.4.1), and has a scheme for prefinancing projects for contractors.

Its methods and conditions for this scheme are similar to those of the BHC, except that with the lesson provided by the high level of

TABLE 13.9. Bank for Housing and Construction: Monthly Loan Repayments on Private Industrial Projects

Type of Project	Regular Repayment		DEFAULT (Months) 0 - 4		4+ - 12		12+		TOTAL	
	No.	Amount Outstanding	No.	Amount Outstanding	No.	Amount Outstanding	No.	Amount Outstanding	No.	Amount Outstanding
SERVICE INDUSTRIES										
Hotels	3	308,349.54			1	299,034.00			4	607,383.54
Disco/Night Clubs	2	342,054.75			1	146,500.00			3	488,554.75
Restaurants	4	240,425.71			2	209,840.00	1	11,522.00	7	461,787.71
Travel Agencies	2	107,047.96			1	118,000.00			3	225,047.96
Schools	2	109,848.00			1	108,760.00			3	218,608.00
Clinics/Hospitals	1	95,900.17							1	95,900.17
Supermarkets/Cold Stores	1	67,913.00					2	115,640.00	3	183,553.00
BUILDING MATERIALS										
Brick and Tile										
Ceramic Projects							1	543,697.49	1	543,687.49
Concrete Products	2	971,378.74					1	422,220.00	3	1,393,598.74
Quarry Projects					1	441,916.25	2	159,959.05	3	601,875.30
Block Making	1	7,615.68					4	173,558.00	5	181,173.68
Metal Works										
Wood Products	3	194,373.18			2	505,367.46	2	129,718.00	7	829,458.64
Other Building Materials							5	1,074,265.75	5	1,074,265.75
Miscellaneous										
TOTAL	21	2,444,906.73			9	1,829,417.71	18	2,630,580.29	48	6,904,904.73

defaults on the latter's loans, the SSB has had to adopt more stringent controls. These include its handling the greater part of the firm's activities; directly receiving all the correspondence on the project for which it has loaned some money.

Since many of the BHC's bad debtors have become customers of the SSB, the test of the SSB's survival will be its ability to introduce and enforce fool-proof methods of surveillance. Much can be gained from healthy competition, as opposed to rivalry and vindictiveness, between the SSB and BHC.

13.7.3. Encouragement

Certain aspects of government's involvement in the contracting part of construction, apart from direct involvement and the provision of support services, have already been referred to in various sections of this thesis, but it is worth summarising some of them here:

(a) measures to promote the evolution and expansion of indigenous construction firms, not as a means of completely indigenising the industry but rather to make the local firms able to compete effectively with their expatriate counterparts. The 1970 Plan disclosed that:

> "Considerations will be given to making it possible for the best Ghanaian firms to undertake jobs on trunk road maintenance and construction work;"[35] (see also 8.4.2).

(b) schemes to encourage the entry of professional personnel into contracting by providing them with the resource they lacked most: finance (see 13.2). This would infuse into the industry firms with greater prospects of growth as a result of the greater dedication, better knowledge and wider horizons of these persons (see 13.6.1-4);

(c) arrangements to promote the establishment of joint ventures between Ghanaian and expatriate firms for their mutual benefit and for the

wellbeing of the local industry; and insistence on the inclusion of clauses safeguarding the interests of the Ghanaian partner (see 13.4.1);

(d) registration of contractors (see 13.3), which enables prospective firms to enter the contracting field formally and serves as a basis for selection, maintenance of standards, aspirations and promotion; and

(e) government's attempts to improve the qualities of the resources available to contractors (materials, plant, manpower and finance) and of their operating environment are, in effect, efforts to encourage contractors. (See 8.4.1-6).

13.8. Contractors Association

The effective growth of contracting firms in Ghana is the principal aim of the Civil Engineering and Building Contractors Association (CEBCA) which was formed in 1973 when government urged a number of splinter organisations, some of which dated back to pre-independence days, to come together. In seeking the interests of contractors the assocation hopes to promote the development of the local construction industry. It furthers good relations between contractors, on the one hand, and clients and consultants on the other and endeavours to influence government on policies and procedures which affect the industry (see 3.6.1.5-6, Chapter 7 and 13.5.3).

13.8.1. Membership

All contractors working in Ghana, expatriate and local, private and public, may become members of CEBCA, and most registered contractors belong to it. The association wishes membership to be made mandatory for every contractor so that it would be possible to maintain standards in the field to the benefit of clients and further progress in the industry.

CEBCA has branches in all the regions, with elected regional and national executives who are practising contractors, and a full-time Executive Secretary.

13.8.2. Relationship with Government

Although it was formed at the instigation of government, the CEBCA is independent and does not receive any public financial support. It has had limited success at lobbying government on issues vital to the development of the industry. Some of these issues have been: the shortage and high prices of materials, labour and plant, and the devious payment system and its inherent delays (see 13.5.3). With its usually strong and vocal leadership, CEBCA's approaches to government have been articulate and forceful, and have tended to alienate officials who view the body as an antagonistic pressure group opposing government policy and procedures. Government and CEBCA have disagreed on many points, and the disputes have been open and usually acrimonious. For example, whereas government officials blame contractors for delaying projects and portray them as unscrupulous and unpatriotic entrepreneurs (see 13.5.2), CEBCA discounts this view and refers to the shortage of key constructional inputs. As a past President of the association said, contractors "... lack all the necessary factors which should contribute towards the expeditious completion of projects...."[36].

Because of this open confrontation, CEBCA has been unable to obtain government support on some important matters. To cite only two examples: (1) an exercise in the re-registration of contractors was mounted in 1978 to rid the field of inefficient and non-dedicated ones, and the association applied for a place on the committee charged with the task. The offer of a place was made when the exercise had been completed; and (2), CEBCA has, on several occasions, requested positions for its representatives on the various tender boards (see 9.6.1-7), but these appeals have been rejected on the grounds that membership of the

contract awarding body should be the prerogative of the client.

13.8.3. Advocate and Disciplinarian

CEBCA arbitrates in disputes involving its members and other parties to construction projects, and has succeeded in seeking the re-employment of or adequate compensation for contractors whose projects were suspended or terminated. In this way, it has helped small contractors who had been unaware of their rights, or unable to enforce them (see 9.5.6.3).

CEBCA negotiates collective agreements with the unions on behalf of its members and tries to prevent the poaching of skilled manpower by barring members from advertising wages higher than those agreed upon, although a firm can pay its employees as much as it likes[37].

The association is eager to counter the bad reputation and the unfavourable press that contractors have in Ghana (see 9.7.4 and 13.5.2-3). In 1979 it had the intention of employing a full-time Public Relations Officer. At the same time, it is making efforts to maintain a high standard of discipline and competence among its members. Its President reiterated that it was determined:

> "... to improve on the standard of performance among its members, and ... will not hesitate to sanction any member whose performance or conduct adversely affects the image of the Association."[38]

13.8.4. Resources

The CEBCA finances itself from members' subscriptions and small fees it charges for some of its services to members. It wishes to establish a central fund from which it would:

(a) train tradesmen and artisans at the vocational and technical institutes;

(b) employ a pool of qualified professionals to assist members, most of whom cannot afford the full-time services of such personnel (see

13.6); and

(c) establish a bank for contractors, if its requests to be allowed to play a role in the BHC fails. Its application for a place on the bank's board was rejected, as was its request to be allowed to buy some of the bank's shares. Now it is requesting that its advice be sought on how best assistance to contractors could be provided by the bank (see 13.7.2.1.2-8).

Members have not paid their subscriptions regularly and the central fund has not generated any enthusiasm. Thus none of CEBCA's ambitious projects has been launched. The apathy to its projects is due mainly to members' preoccupation with the management of their firms and contracts, a formidable task in present circumstances (see 13.5.3-4).

13.8.5. Effectiveness

The effectiveness of Ghana's well-organised contractors association is limited by the lack of support (especially financial) from its own members and from the government. CEBCA's experience shows that whereas a docile and pliable association would be worth little, there is a danger that a radical and outspoken body might prompt government to at best adopt an uncooperative attitude, or worse, make it difficult for the organisation to sustain itself and grow, or even try to ban it.

13.9. Conclusion

13.9.1. Definition

In view of the variety of possible and desirable sizes and levels of sophistication that contracting firms can have, it is necessary, in considering the issue of contractor development, to identify the type or types of contractors needed. Ghana is deficient in large firms whereas it has an abundance of small and medium-sized ones. Thus the main issue is to promote the emergence of relatively large firms.

13.9.2. Characteristics

The characteristics of Ghana's contractors are the result not only of economic, administrative, legal and technical factors, but also historical, socio-cultural and political issues. The nature of the firms contributes to and, in some cases, worsens the problems facing them. The problems are, furthermore, different for various categories of contractors.

Effective solutions can be found to contractors' problems only after careful study of the issues which lie at their roots. Thus, for example, it is not useful to advocate the formation of mergers when the issue is rarely understood in the country and certain institutional factors militate against it.

13.9.3. Categorisation

There is the need to categorise contractors in such a way that the special needs of each group can be identified and ways of meeting them formulated. A set of criteria such as size, level of sophistication and technical and managerial competence of proprietors and/or staff could serve as a basis for such categorisation.

13.9.4. Finance

Although finance is usually identified as the most crucial need of contractors in developing countries (see 13.1 and most of Chapter 5), not much can be achieved merely by lending contractors money, and Ghana has particularly bitter experiences in this field. It is necessary to conceive of contractor development programmes as involving the provision of a package of services, of which finance is only a part, to the contractor. In issues pertaining to finance, efforts should be made to balance the special needs of the contractor with the interests of the lending institution.

13.9.5. Training

The institution of training programmes is bound to be difficult in practice. Not all contractors see the need for training, and the predominance of sole-ownerships and the present management styles of contractors in Ghana, rules out their participation in long or full-time courses. Moreover, the construction environment in Ghana does not facilitate the use of elaborate management techniques. Thus undue emphasis should not be placed on the training of contractors.

13.9.6. Commitment

A major problem in contractor development in Ghana is to ensure that firms in the field are sufficiently committed and dedicated to the industry. Of the hundreds of small firms in the country, few may be said to be thus committed and to be pursuing corporate aims that might promote their survival. Most were attracted to the field by the prospect of quick and easy profits, as foreseen by their proprietors. Many are only part of a number of ventures run by the proprietors. The number of contracting firms means little when most will withdraw or collapse at the first sign of difficulties.

13.9.7. Contractors Association

Associations of contractors can promote the interests of members and help in the evolution of efficient firms. Experience in Ghana shows, however, that the mere existence of such a body will not guarantee success. Also important are its relations with government, the support of its members and its own effectiveness.

13.10. Notes and References

1. To give an indication of the scale of the expansion, part of the school building programme may be considered. "About 2500 primary schools and 374 middle schools had to be opened in 1962 ... By 1965 the number of [teacher] training colleges had risen from 31 in 1961 to 84." - "The Ghana Education Trust was established to increase the number of secondary schools in the shortest possible time," - Information Services Department, Ghana Today 9: Education in Ghana 1930-74, Accra, 1974, pp. 15 and 17.

   See also Ministry of Education, Education Report 1960-62, Ministry of Information, Accra, 1963; and Education Report 1963-67, Accra, 1968.

2. Writes Jones (1976): "After 1951 Ghana had become a happy hunting ground for business entrepreneurs from many countries, attracted like flies to jam by the country's burgeoning reserves and the free spending proclivities of the new government." - Jones, T., Ghana's First Republic 1960-66, Methuen, London, 1976, p. 167.

3. This includes firms who come in to work only on one project.

4. Government of Ghana, Budget Statement 1978, Accra, September 1978, p. 22.

5. Ibid., p. 16.

6. A newspaper editorial also observed that: "... how public contracts are won by certain types of contractors is a mystery. Some contractors get important building contracts although they do not have even a wheel-barrow to show for their claim to be contractors." - Nation Owes This Service, Ghanaian Times, Editorial, 31 August 1978, p. 4.

7. PWD (Ministry of Works and Housing), Register of Contractors for Government Works and Supplies Licensed Contractors as at 31 March 1972, Commercial and Industrial Bulletin, No. 41, 5 May 1972.

8. A policy paper issued by government in 1968 declared its intention "... to ensure that Ghanaian enterprises receive the maximum encouragement, and that there is no excessive control by foreign enterprises in the economic sector. The object, in short, is to develop well balanced and progressive fields in which indigenous business plays its full role." - Government of Ghana, An Official Handbook 1976, p. 120.

   This policy statement was followed by the passing of the Ghanaian Business (Promotion) Act, 1970, and later by the Ghanaian Enterprises Development Decree, 1975. (NRCO 330). Foreign investment was, however, still encouraged under the Capital Investments Act.

9. See 5.4.4.2; 13.2 and 12.6.5(7).

10. The new Minister of Finance, Dr. Amon Nikoi, laid the blame for the non-completion of projects squarely on contractors, observing that governments had always "... borne the blame which should have gone to contractors for failing to complete certain development projects ... in the past contractors had not lived up to their responsibities." - Improve Upon Performances (address to Northern Region

Branch of the Civil Engineering and Building Contractors Association, Tamale), Daily Graphic, 17 January 1980, p. 11.

11. Thus contractors reject the accusation that their inefficiency is the sole cause of project delays and non-completion. Countering the argument of the Minister of Finance (ibid), the Executive Secretary of the Contractors Association, Mr. Sam Boateng, declared: "The ... truth is that the inputs ... machinery, raw materials and the like are not available and the country has not got the money to import them ... like all other commodities, building materials and constructional inputs have been in short supply for some years now. Have not all our manufacturing houses in this regard virtually seized to function?" - We Are Not To Blame, Daily Graphic, 19 January 1980, p. 4.

12. See Penrose, E.T., The Theory of the Growth of the Firm, Basil Blackwell, Oxford, 1969.

13. See also 9.5, 9.6 and 9.7.

14. There being no floor level to projects that bigger firms can tender for, many of them work on projects costing less than ¢300,000.

15. A study of the manpower situation in construction, conducted by the Manpower Board, observed a movement of skilled personnel from the bigger to the smaller firms, where they expected better conditions and longer tenure of service. - Tayman, S.Y., Interim Report on the Manpower Situation in the Construction Industry, Manpower Board, 1977 (unpublished). See also 11.3.2.

16. In other words, the corporate objectives of the firms.

17. Mr. Kwame Poku, Volta Region Chairman of the Contractors Association, drew attention (of the AESC) to the "... influx into the construction industry of some persons who, to say the least, have no idea of the industry and to appeal to you, very strongly, to register only the genuine, reliable and hardworking contractors." - The Consultant, Vol. 2, No. 1, May 1977, p. 13.

18. Preditably, contractors have blamed their unfavourable reputation in Ghana on the entry of uncommitted and ignorant firms into the field. See footnote 17 and later in this chapter (13.8.3).

19. Writing of entrepreneurs in developing countries, Damachi (1978) observed that: "A definite managerial style seems to emerge ... Authority is highly centralised. As a result, any form of delegation of authority is therefore limited because of managers' mistrust of those not related by ties of kinship or ethnicity." - Damachi, U.G., Theories of Management and the Executive in the Developing World, Macmillan, London, 1978, p. 113.

20. See Channon, D., The Service Industries, Strategy, Structure and Financial Performance, Macmillan, London, 1978, pp. 45-46.

21. "In a high proportion of firms in the construction industry, the owner or part-owner of the firm is in an executive position." - Hillebrandt, P.M., Economic Theory and the Construction Industry, Macmillan, London, 1974, p. 90.

"Autocracy and paternalism have, I believe, served our industry well in the past: the family influence has probably been felt more in

construction than in most walks of industrial life..." - Trench, Sir P., Building in the Eighties, Building Technology and Management, Vol. 18, No. 1, January 1980, p. 34.

22. Government of Ghana, The State Housing Corporation Instrument, Legislative Instrument, No. 521, p. 1.

23. These were related to the author in a discussion with an official of the corporation in April 1979. See Appendix B.

24. Ibid.

25. Ibid.

26. Ibid.

27. Ibid. See also, Andrews, J., The State Construction Corporation, A Report for the Minister of Overseas Development (UK), unpublished, 1976.

28. Government of Ghana, Bank for Housing and Construction Decree, 1972, NRCD 135.

29. The figures in this section were obtained from the annual report for 1977/78 of the Bank for Housing and Construction.

30. Government of Ghana, op. cit. (ref. 28), clause 3(2)(ix), p. 4.

31. "... everybody is witness to the fact that for every contract of a 30 kilometre feeder road, a contractor manages to build a house for himself and everybody can see the affluence that is displayed the minute somebody is awarded a government contract." - Graphic View, You are to Blame, Daily Graphic, 21 January 1980, p. 2.

32. Having invested all they have in the projects, contractors meet personal and other expenses from payments they receive from clients. They seek help from the bank to enable them overcome the effect of delays in such payments.

33. This figure was quoted by several contractors in the author's discussions with them (see Appendix B). Though surveyors indicated that since 1975 the level of profits and overheads had risen from 10-15 to 15-25 per cent (see Appendix A.7), it was apparent that increased overheads had eroded contractors' real profits.

34. Government of Ghana, op. cit. (ref. 28), clause 27(1), p. 19.

35. Government of Ghana, One Year Development Plan, July, 1970-June, 1971, Accra, September 1970, p. 119.

36. Boakye, F., Contractors Urged to Turn New Leaf, in Works and Housing Today, Vol. 1, No. 2, August 1978, p. 30. See also footnotes 10 and 11 above.

37. This was disclosed to the author in interviews with some executives of the Association in Accra and Koforidua in May 1979.

38. Boakye, F., op. cit. (ref. 36), p. 30.

PART FOUR

A PROGRAMME FOR GHANA

CHAPTER 14

GENERAL STRATEGY

"The challenge to the building and building materials industries lies in the fact that in most countries, in this century, the cost of a socially acceptable dwelling has not declined in terms of average incomes, as happened in many other consumer products. The capacities [of the building and building materials industries] though limited, can be increased more rapidly than those of most other industries. Also they are in the main labour-intensive, and the capital investment for an expansion of capacity is low in comparison with other industries."

- Department of Economic and Social Affairs, Report of the Adhoc Group of Experts on Housing and Urban Development, United Nations, New York, 1962, p. 27.

"The social aspects of change, the immaturity of the legal, political and administrative devices, as well as the need for training and education are only a few of the challenges to the emerging societies. The place of private and public investment in building and materials production, together with the unsettled ... tax, land, savings and transportation policies, is another ... the need is not only for general theories but for practical proposals. The answers, moreover, suggest themselves after one has visited the country and talked to the people as well as the officials and experts."

- Abrams, C., Housing in the Modern World, Faber and Faber, London, 1964, pp. x-xi.

14.1. Introduction

The main features of Ghana's construction industry and its environment are:

(a) a Ministry of Works and Housing with a long history but little prestige in the governmental machinery and little control over the construction industry, and with feuding subordinate organisations starved of resources and power and unable to perform to the envisaged levels (see Chapter 7);

(b) the failure of elaborate development plans and budgets which

incorporate construction to guide government policies and actions; lack of a data base for planning; and continuing economic stagnation or decline (see Chapter 8);

(c) procedures which appear appropriate but which are seldom adhered to, and hence generally have limited effect on the industry; linkage of construction procedures with those of general administration and hence the need for changes in the latter if the former are to be altered; difficulty in effecting and implementing change (see Chapter 9);

(d) reliance on conventional materials due to clients' and public's preference for them (for historical, cultural and other reasons); apathy towards local materials and their limited availability due to the underdevelopment of the industries manufacturing them (see Chapter 10);

(e) Shortage of staff at all levels; lack of incentives and, in recent years, a loss of qualified personnel to neighbouring countries; inadequate facilities and shortage of teachers, diffusion of control over educational programmes and imbalance in the categories of trained personnel (see Chapter 11);

(f) the application of a wide range of technologies as a result of government policy, clients' preferences and design and specification criteria - a reflection of designers' training background (see Chapter 12); and

(g) a long history of contractor development involving state participation, the provision of support services and government encouragement; lack of commitment to contractor development on the part of government agencies; a well-organised contractors' association whose potential is yet to be realised (see Chapter 13).

14,2. Task

Under Ghana's present circumstances the task facing the construction industry becomes that of its contribution towards the improvement of a worsening economic situation and social conditions bordering on despair. Considering the difficulties and the length of time involved in effecting any changes in its environment (see 3.6.3), the problem resolves itself into that of enhancing the efficiency of the industry itself (see 3,8); improving its executive and organisational capacities to enable it to cope with, and promote the improvement of, an unfavourable operating environment.

In particular, it is essential that the construction industry should:

(a) economise in the use of resources: materials, labour and plant, in its fulfilment of demand in order to reduce costs, provide value for money and help reduce government's capital expenditure, and hence the budgetary deficit and rate of inflation (see 6.4.6 and 6.5,2-4);

(b) develop local self-sufficiency and reduce the reliance on conventional materials, hence the import bill and, ultimately, the openness of the economy (see 6.3 and 6.5.3);

(c) continue to provide employment for large numbers of people (see 12.2) and find ways in which the optimum use can be obtained from the abundant supply of labour;

(d) adopt a mixture of technologies which allows for the long-term development of the industry, using advanced technology where it is most appropriate (see 3.6.7 and 5.4.4.5(c); and

(e) to recognise, and give expression to, local socio-cultural perceptions and aspirations, involving the use of local skills and techniques, and the development of appropriate relationships within the industry and between it and its clients and users (see 1.3.6; 1.4.5-6; 3.6.5-7 and 4.4.2).

14.3. Dynamism

The programme for developing Ghana's construction industry needs to concentrate effort on the measures that are most likely to increase its flexibility, capability and efficiency and, in a dynamic process, enable it to be increasingly able to contend with and reduce the effect of the bottlenecks in its operations and eventually (after it has understood them better) to be able to remove them (see 3.8).

But placing emphasis on a few issues does not mean that others should be ignored altogether. What is needed, however, is a sense of order and priority.

14.4. Ranking and Links

Improving the attributes of the industry mentioned in Section 14.3 involves the enhancement of the quality of personnel involved in it. Of the industry's personnel, considering the nature of its task (see 14.2), contractors appear most important. Hence contractor development assumes top priority, followed by general manpower development, and by others in the order of ease of applying them and the likelihood of success. This makes it clear that measures given a low ranking are not necessarily unimportant, or irrelevant or impossible to alter (see also 14.3).

It should also be remembered that the ranking is done in relation to Ghana's present circumstances and resources. Thus the sequence is not essentially applicable to other countries and, even in the case of Ghana, will not necessarily be valid at all times.

Considering the proposals under the same broad headings as adopted in Part III of the thesis, they may be ordered as follows:

(1) Contractor Development;

(2) Manpower Development;

(3) Development of appropriate materials;

(4) Adoption of appropriate technologies;

(5) Revision of building codes and regulations, contract documents and contractual procedures;

(6) Establishment of planning and control of the demand for, and resources of, construction; and

(7) Improving the status of the Ministry of Works and the operations of its subordinate organisations.

Contractor Development: See later (Chapter 15).

Manpower Development: The development of the industry's manpower resource is given a high priority because it has great potential of a multiplying effect. It would enable economies to be made in the use of materials, permit the proper utilisation and maintenance of plant, reduce costs, make it possible for ways to be found of using labour as an alternative to equipment in various categories of construction work and, by increasing the industry's understanding of its operating environment, help it to formulate or support measures to improve it (see 3.8 and 14.2-3).

Materials: Although manpower development would increase the ability of the industry to cope with the shortages of materials, the inception and implementation of policies to ease the acute shortages and develop appropriate local alternatives for conventional materials are also important (see 10.8), because this would ease delays, reduce costs and promote the development of the industry.

Technologies: The adoption of effective measures to promote the use of the appropriate technologies in categories of construction follows in the order of importance and ease of formulation and application (see 5.4.4.5). It would promote efficient and optimum use of labour, self-

sufficiency and the general technological advancement of the industry.

Procedures: The revision of procedures and regulations used in the construction process will require much effort and cooperation on the part of several individuals and institutions, and take time to implement. Thus it is placed fourth in order of priority (see 9.3.5; 9.4.6; 9.5.7; 9.6.8 and 9.7.5).

Planning: The poor data base for planning and the weakness of budgetary control as well as lack of commitment to plan implementation make it unlikely that plans and budgets can be used to the desired effect in Ghana in the near future. This has prompted the low ranking given to it (see 8.7).

Ministry of Works and Agencies: Changing the status of the Ministry of Works will necessitate a reformulation of the whole central government system. Similarly, the relationships between and the operations of the ministry's subordinate bodies cannot be altered effectively in a hurry (see 7.9). Thus the Ministry and its agencies are accorded a low ranking.

14.5. Strategy

The strategy to be adopted will be made up of measures classified into those to be embarked upon in the:

(1) short term (0-5 years): these will include proposals that can be implemented and those of greatest priority;

(2) medium term (5-10 years): issues that, though desirable, can only be effectively attended to when conditions are right; and

(3) long term (after 10 years): guidelines for future government policy, and matters that can be supported only by a strong economy and cooperative effort on the part of individuals and institutions

within and outside the industry (see also 3.8).

Despite the suggestion of a scale of priorities, the approach should not be piecemeal. The programme itself should be drawn up in such a way that in each period a package of specific measures would be initiated and/or implemented.

It is assumed that all the measures in one stage are implemented with a measure of success before those in another period are embarked upon. However, the stages are not discrete nor discontinuous: one stage blends into another, the solutions of each stage becoming the catalyst for programmes in succeeding stages.

It is also recognised that changing conditions in the industry at any one time, or failure of any of the measures in earlier stages, will generate problems of a different kind or intensity, which should be anticipated and tackled by tactics at subsequent stages. Thus the programme should not be a static, once and for all, package but a dynamic, flexible and adaptive series of proposals (see 3.8 and 5.5).

14.6. Manpower Development

The objectives of the programme for improving the quality and quantity of construction personnel would be:

(1) to relieve present shortages of skilled personnel at all levels,

(2) to redress the present imbalance between professional and technician categories,

(3) to relate the content and background of training to local circumstances,

(4) to promote cooperation among the participants in the construction process, and

(5) ultimately, to obtain a mobile and flexible corps of local personnel conversant with the changing needs and available human, material

and institutional resources of the country.

14.6.1. Short Term

(1) As a matter of priority, a unit should be established within the Ministry of Works and Housing to coordinate training in construction skills (see Fig 13.1 and 11.12.3). This could be part of one of the technical directorates (see 7.3.1.1), composed of no more than just an additional administrative assistant of the director; alternatively, the work could be handled by two existing personnel.

This unit would have links with the Manpower Board, the NVTI, the MDPI, UST and the academic committees of the professional institutions (see 11.5; 11.7.2 and 11.8.1).

The first task of this unit should be the formulation of a national plan for training in construction (see 11.12.2). This would involve the assessment of existing needs and resources (buildings, equipment, teachers and funds),in the various categories of skills, as well as short-, medium- and long-term strategies, which could embrace the following points.

(2) Apprenticeships: Self-help projects in the rural areas can be used as a means of imparting construction skills if small teams of skilled tradesmen are deployed to instruct interested local people. Retired tradesmen could be used in this teaching capacity. This is a role for the Department of Social Welfare and Community Development (see 7.8.3,3).

The NVTI should be enabled to play a more positive role in training by being charged with the formal organisation and coordination of all apprenticeships. To this end, its schemes should not be open only to those sponsored by their employers but, perhaps for a small fee, should also be put at the disposal of new entrants to the trades or the unemployed.

(3) Trades: Whereas the new national education system (see 7.8.1) and remunerations in the industry (see 11.4.1) would create favourable attitudes to the construction trades, it behoves upon the industry to make conditions more attractive to a higher calibre of personnel. This would involve safety on site, employees' welfare, remuneration and employer-worker relations (see 11.12.6).

Two particular types of skill which need immediate attention are plant operators and mechanics. There are, at present, no facilities for their training (see 12.6.3). The best way of attending to them is to establish courses at the Bank for Housing and Construction's plant pools in Accra and Kumasi (see 12.6.2 and 13.7.2.1.8) and at the Ghana Highway Authority's training centre at Shai Hills, Eastern Region, initially for contractors' employees but later also for other suitable persons.

Government should provide funds for the courses of the Highway Authority, but those of the Bank for Housing and Construction should be considered part of its responsibility to train construction personnel (see 13.7.2.1).

(4) Technicians: The level of physical facilities and teachers makes it unlikely that the size of annual intakes to the technician courses can be increased (see 11.6). At this stage, efforts should be concentrated on the training of more technical instructors for technicians and the trades. Meanwhile, to relieve present shortages of technicians and trades (see 11.2), greater use should be made of on-the-job training and self-tuition. Part-time courses should be organised at the polytechnics for employees of both public and private consultants and contractors.

The professional institutions should pay some attention to the technician and licentiate grades. They now concentrate on professional memberships (see 11.11.1.1). It should be possible

for the institutions to organise evening classes for the former grades, at which some of their qualified members would lecture.

(5) Graduates: Intake into graduate courses (see 11.8.1) in construction cannot be increased without a deterioration in the quality of their products (see 11.9.2). At this stage, emphasis should be put on completing the central classroom block at UST, rehabilitating the laboratory and workshop equipment, other teaching aids and the library, and finding ways of making teaching at the university attractive to experienced professional personnel. These measures could include opportunities for consultancy and research, and accommodation.

The effect of the shortage of lecturers (see 11.8.1.5) could be alleviated through the adoption of arrangements which permit greater use of part-time teachers.

A start should also be made at revising the syllabi of the courses at UST and elsewhere (see 11.12.1). For example, in architecture the course in contract administration should adopt a more critical approach to present documents and practices; that in materials and construction should consider local materials and techniques and leave out the obviously inapplicable items such as fireplaces; and the study of history of architecture should pay more than the present passing attention to traditional ideas.

Attempts to rehabilitate and renew the stock of literature, and to revise the courses, should endeavour to introduce modern ideas on the nature and management of construction activity (see 3.6.6. and 7.3.5.2).

Efforts should be made to revive the sagging attempts by some members of staff at the university to write textbooks on construction (see 11.8.1.1). This could take the form of grants or chances of promotion.

(6) Multidisciplinary Nature: The nature of training at UST is, to some extent, multidisciplinary (see 11.8.1.3), a situation dictated by shortage of staff. There is scope, however, for continuing and intensifying this practice and applying it to real-life projects and situations. It should also cross faculty boundaries. A development scheme would, thus, involve the Faculties of Social Sciences (Cost-Benefit Analysis), Architecture (Planning, Design, Cost Advice and Project Management) and Engineering (Roads, Structures, Services).

This is a way not only of breaking into professional cocoons (see 3.6.6 and 11.11.1.2), but also enabling students to gain experience of work situations and to appreciate the contributions of other participants in the construction process from the inception of a project to its completion.

Such an arrangement could be used on the university's own capital projects or on those of interested public departments or parastatals. When such live projects are not available, examples of hypothetical ones may be used.

(7) Practical Training: The present system of industrial training for undergraduates does not enable students to obtain any real knowledge (see 11.8.1.1). In the first two years students know too little to benefit from this training, and in later years their ambiguous positions in the organisations to which they are attached are not conducive to learning.

In revising the contents of the courses (see 14.6.1.5), it might be worthwhile to consider whether it would not be better to restructure the courses to allow a year's industrial training after the third year of the degree courses and the fourth year of the architecture course. The arrangement for the two- and three-year diploma courses could remain unchanged.

(8) Links: UST should improve its links with industry to avail itself of present conditions in it and to avoid living in an abstract situation. Rather than teaching the ideal, it is more advisable to teach both the ideal and the real, at the very least as a means of provoking further thought (see 11.8.1.1).

Thus it might be possible, through discussion and study, for the university to determine methods by which the industry can deal with the present conditions in its environment (such as shortages of materials and delayed payments). It is surprising that such an issue has not been given due consideration.

(9) Non-academic Factors: Training at all levels, and particularly at the technician and professional, should include non-academic or non-technical aspects such as discipline, leadership, personal relations and management (see 11.12.1).

It should also give the student a fair idea of the Ghanaian work situation, not only to prepare him for employment but also to stimulate in him the spirit of criticism and enquiry that would help improve the situation. Thus, for example, students should be taught the rules of thumb used by the AESC and GHA, and they should also be told what the relations between AESC and GHA should be as well as what they are (see 7.3.5.3 and 14.6.1.8).

(10) Placement: The temptation should be avoided of placing newly qualified persons in positions where they are directly in charge of a whole district or region. The learning process should continue in the employment situation (see 11.12.1) and it should be a matter of policy that graduates are put in subordinate positions for at least a year to enable them to gain experience without making great mistakes.

(11) Retention: Government should establish a committee to study the factors giving rise to the present brain-drain from Ghana (see 11.3.2 and Chapter 11, footnote 23) and propose appropriate measures to reduce it, or enable it to be organised in a way which benefits the nation, either financially or in terms of enhancing the experience of qualified Ghanaians, or both; or, at least, reduce the disruptive effect of the exodus on the local industry and economy.

14.6.2. Medium Term

(1) Expansion: in the medium term, if resources allow, attempts should be made to expand the physical facilities for training at any desirable level. When this has been done, and assuming that the number of instructors has increased (see 14.6.1.4), the intake into the various courses can be raised.

(2) Responsibility: Government should, progressively, pass on increasing parts of the responsibility for financing training to the industry itself, especially apprenticeships and training for the trades. This could be done by encouraging the Contractors Association (see 13.8) to establish and administer a training fund for its members.

Government's taxation policy should enable firms to claim tax exemption on their expenditure on training. Furthermore, the award of construction and consultancy contracts (see 9.6) could be used to promote training and so could the promotion of construction firms to higher financial classes (see 13.3).

(3) The MDPI (see 11.7.2.1-2) should establish a construction unit to run occasional and refresher courses for construction personnel and to impart basic ideas on the nature of the construction process to

civil servants and politicians to give them an idea of how their actions or inactions help or harm the industry and to enlighten them on the implication of policies for the industry.

This unit need not employ teachers; it could use practising professionals on its courses.

(4) The subordinate organisations of the Ministry of Works and Housing (particularly the PWD, AESC and GHA) should together establish an institution for the training of technicians. This could involve an expansion of the PWD's draughtsmanship school or the use of the premises of the Accra Polytechnic in the evenings. Instructors at this institution would be the organisations' professional employees.

(5) UST should involve itself in the national development effort. It should divest itself of the pedestal on which universities usually raise themselves, or are placed. It is possible for this to be combined with ways of earning money for UST's development programmes. For example, a multi-disciplinary consultancy organisation of the staff could be formed and, also, postgraduate design students could be involved in the design of projects for the various parastatals, fourth-year quantity surveying students could be entrusted with the preparation of bills of quantities for, say, the standard drawings of the AESC and Housing Corporation, and fourth-year engineering students could design services and structures for such schemes. (See also 11.8.1.2; 11.8.1.4; 14.6.1.6).

These measures would call for a series of arrangements between the university and the various client and consultancy organisations. The staff and students of UST are thus in a position to relieve the present shortage of skills of the professional and technician categories. (See 11.2).

(6) Schemes should be formulated to reduce the predominantly residential nature of Ghana's education institutions and to relieve the constraint that students' accommodation has on expansion programmes (see 11.8.1.5). This could involve the encouragement by government and the institutions of developers such as the Social Security Bank, Ghana Commercial Bank and Bank for Housing and Construction to provide hostels near the campuses for renting to students, or the provision of efficient means of transport for students between campus and their places of residence.

(7) When the revised syllabi for the training institutions have been implemented (see 14.6.1.5), then orientation courses should be run for expatriates coming to work in Ghana, or Ghanaians trained abroad. This would be done under the auspices of the MDPI (see 14.6.2.3) at six-monthly or annual intervals, depending on the number of entrants.

14.6.3. Long Term

(1) If demand for construction continues to increase manpower requirements would increase, and it would be necessary - if any new university is considered in the long term - to consider the creation of faculties for construction. Otherwise the facilities at UST and other institutions should be expanded progressively in tune with long-term forecasts (see 14.6.1.1).

(2) Should demand for construction in Ghana fall dramatically and lead to large-scale unemployment of skilled personnel (an unlikely situation), then arrangements could be made to lend staff to other African countries, particularly English-speaking West, East and Southern African countries, as has occurred since the early 1970's in the case of graduate teachers.

(3) Attempts should be made to reduce the tension within organisations, especially between professionals and administrators, and also between organisations, to allow for the integration of effort and the enhancement of executive capacity (see 11.12.7-8).

14.7. Materials

Manpower development will promote economies in the use of materials (see 14.6). At the same time, a programme should be formulated for materials with the objectives of:

(1) relieving current acute shortages;

(2) effectively utilising local materials, and eventually

(3) expanding the production of both conventional and local materials.

14.7.1. Short Term

(1) The Ministry of Works and Housing should assume direct control of the materials development programme to provide a point of focus for the activities of the various bodies concerned with aspects of the programme: the research institutions, Forestry Department, the Ministry of Industries, and the various public and private investors.

(2) Imports of materials for construction should be rationalised, with greater emphasis on the provision of spare parts to rehabilitate existing factories such as Tema Steelworks, the quarries and the timber processing industries, and raw materials for those factories utilising them. The importation of finished materials and components should be limited to items like bitumen that cannot be produced locally. (See 7.7.1, 10.3.1 and 10.3.1.1-2).

Importation of materials should be planned; annual needs should be related to estimates of foreign exchange (see 8.2.7).

(3) A committee should be established to take stock of and relate available research results to formulate ways of ensuring their effective implementation. Members could be drawn from the Ministry of Works, AESC, PWD, UST and representatives of the professional institutions. It would extend the work of the committee on local building materials (see 10.5.2).

(4) A national conference should be organised by the Ministry of Works for professionals, lecturers, planning officers, building inspectors and officers of the city engineers' and district councils to enable the research institutions to appraise them about the performance characteristics of new materials and generate ideas for the revision of building regulations. This could be a biennial affair.

(5) A social study should be conducted by the DHPR, using students of the Faculty of Architecture, to identify and classify preferences for materials and the nature of traditional construction (see also 11.8.1.2 and 14.6.2.5). This should lead to the delineation of areas where certain indigenous materials are likely to be acceptable, to enable a regional attitude to the promotion of indigenous materials to be adopted. The study should also attempt to identify local raw materials and help in decisions on the establishment of appropriate production units. Hence, burnt brick factories could be set up in areas where sun-dried bricks are a traditional building material (see 10.8.4-7).

(6) Government should give the political lead in the use of appropriate materials in various areas (see 10.8.4). It should instruct its consultants and parastatals involved in construction (such as the State Housing Corporation) to use them. Such materials should also be used in self-help projects (see also 14.6.1.2).

Promotion exercises should not be limited to occasional exhibitions or isolated buildings, but should be widespread with prototypes near market places, lorry stations, meeting places, sports stadia, hotels and similar places of easy access to the public (see 10.8.4).

(7) Landcrete blocks appear to be material that can be propagated for nationwide utilisation as a substitute for the ubiquitous sandcrete. Skills for placing it are also available. The problem, however, lies with controlling the quality of the material, and in obtaining the manual and mechanical presses for producing it. To relieve the pressure on the demand for cement, it is worthwhile to attempt to produce the manual press in appreciable quantities for effective distribution (see 10.5.6).

It would also be prudent, at this stage, to make the possession of a mechanical press a prerequisite for registering contractors (especially Classes II, III and IV) (see 13.3.1).

Courses should be run at the DHPR and BRRI to teach the correct method of making landcrete blocks.

(8) Bricks are popular in the urban areas; the bottlenecks in its utilisation lie in obtaining sufficient quantities of the material and skilled tradesmen. The emphasis at this stage should be on the rehabilitation or completion of existing factories, and the introduction or expansion of courses in bricklaying at the technical and vocational institutes (see 10.5.4 and 10.8.8).

(9) Timber is preferred by the middle class as a building material (see 10.8.6) and it may be promoted among this category of clients through strategies such as the Public Servants Loans Scheme. It

may also be used on mass housing schemes. It is unlikely, however, that the apathy towards timber will be removed in the short term.

The use of timber and its products: plywood, blackboard, laminated boards, as components should be promoted (see 10.5.3).

(10) Traditional materials will remain, for a long time, the only types of material that the majority of rural folk can afford. Thus, efforts should be made in the development and dissemination of cheap materials or methods that will make traditional structures durable and attractive, such as foundations, finishings, water-proofing of walls, and methods of sealing and preserving thatch (see 10.5.5 and 10.5,10).

(11) Terrazzo chippings should be considered under the quarry development programme (see 10.5.9). It is unlikely that natural stone and dimension stone will become widely-used building materials in view of their expense, the cost of transporting them and the lack of skills (see 10.5.8), and it is not advisable to mount efforts to promote them.

(12) Shortages of key materials are inevitable in the short term, and the construction industry needs to develop the ability to deal with the situation.

(13) Some attention should be paid, at this stage, to the training of persons in production management for the factories. Such courses are at present not available in Ghana and technical assistance from foreign agencies have to be arranged or utilised if the nation cannot bear the expense.

(14) The Ghana Standards Board should be charged with ensuring an acceptable quality of locally-produced materials to engender confidence in consumers (see 10.3.2.6).

14.7.2. Medium Term

(1) With the expectation that at this time the BRRI's study on appropriate methods of exploiting limestone would be completed (see 10.5.7), some of the production units would be located near the existing deposits, to produce limestone to feed the cement factories.

The use of pozzolana as an additive to cement should also be encouraged at this stage (see 10.5.7).

(2) The aluminium venture at Kibi would be operative by now. It would relieve the burden of aluminium imports and shortages of roofing sheets, and also provide pozzolana as a by-product (see 10.3.4).

(3) It is to be hoped that the integrated iron and steel project at Oppong Mansi would be completed by this time (see 10.3.2.3) to support the production of steel reinforcement, sheet steel for the Tek block presses, steel sections and spare parts for plant and equipment.

The completion of the Kumasi Steelworks and the foundries at Takoradi and Kumasi at this stage would be particularly helpful (see 10.3.2.3).

(4) Knowledge about indigenous materials would have increased as a result of the changes in the contents of courses at UST and elsewhere (see 14.6.1.5) and the conferences on indigenous materials. The specification and use of local materials would increase.

(5) Timber preservation depots should be established in the forest areas, particularly at the major sawmills, by the Forestry Department; testing facilities should also be provided under the PWD. These would permit the utilisation of the secondary species, data about which would be available at this stage (see 10.5.3 and 14.7.1.9).

If the demand for timber buildings rises, the establishment of units to mass-produce timber components at two of the sawmills or timber processing plants, say at Nkawkaw in the Eastern Region and Mim in the Brong-Ahafo Region, should be considered. It will also be necessary to intensify the training of carpenters, joiners and woodworking machinists and mechanics.

(6) Brick production should be increased at this stage to close the gap between demand and supply. Existing factories should be encouraged to expand production.

Government should also establish additional production units in the regions under the Regional Development Corporations (see 10.5.4 and 14.7.1.8),

(7) The availability and cost of energy will soon prove a bottleneck to the materials, and indeed the whole industrial development programme. Attention should, therefore, be paid to this point when deciding on the establishment of production units.

It also means that research into appropriate technology in the production of materials, as well as the identification and development of local materials, should be intensified (see 10.8.5).

(8) A factory for the production of sanitary units should be established beside the kaolinitic deposits near Nkawkaw, Anfoega or Asamankese (see 10.3.2,6).

14.7.3. Long Term

(1) The establishment of a bitumen processing plant to use the by-products of the oil refinery at Tema should be considered as a long-term objective (see 10.3.1.1).

(2) In the long term, a kiln may be built to use the iron-ore deposits at Shieni in the Northern REgion. This will be conditioned by the availability of foreign exchange as well as energy (see 10.3.2.3 and 14.7.2.7).

(3) Government should encourage international cooperation in the field of materials and technology ie between the research bodies and the Ministry of Works and their counterparts in other countries to enable the nation to benefit from the results and experiences of other countries.

(4) Government should promote amongst the Economic Community of West African States (ECOWAS) the establishment of regional ventures in building materials, particularly those that require a large foreign exchange component, or those for which the raw materials are available in only a few countries in the sub-region (cf. the CIMAO Cement project. See 10.3.2.1, also 1.4.4 and 5.3.1.2).

(5) It should be possible for the country to export any material it produces in surplus to other countries in the sub-region, such as timber products to Gambia.

14.8. Technology

The programme for the technological development of the construction industry will give expression to government's aspirations in that

respect (see 12.6.5.7). Its aims would be:

(a) by pursuing a mix of technologies, to enable the nation to benefit from the most modern ideas while using traditional techniques to best advantage;

(b) to classify construction projects in terms of the most appropriate technologies and adopt policies that permit the utilisation of such techniques in the delineated categories; and

(c) to promote increases in productivity while utilising the available manpower resources in the most economic and socially desirable manner.

14.8.1. Short term

(1) Industrialised Building was introduced to increase the production of houses (see 12.4.1-4). Having established the factories it is unwise to neglect them. As a matter of priority, the Precast Concrete Factory should be provided with the plant and cement that will enable it to achieve a reasonable level of output even if it cannot produce at its full capacity.

African Timber and Plywood's facilities should be rehabilitated: it should be provided with import licences to import vital spares and replacement machinery.

These measures would enable the factories to use their idle capital stock and labour and also help relieve the housing shortage.

(2) Plant. The policy for contractors' plant at this stage should be one of rehabilitation and rationalisation. Spare parts should be imported to service broken-down plant (see 12.6.2). Applications should be made to patent holders to allow the production of spares under licence at a later stage (see 14.8.2.2).

A study should be mounted at this stage to standardise plant and

equipment used in Ghana (see 12,6.4). This would take the form of a review of the performance of brands of plant in the past and the identification of at most two brands of each type to be adopted as the only ones to be imported into Ghana. This would make it easier to maintain adequate stocks of spares. The study could be entrusted to the BRRI and GHA.

The courses established for operators and mechanics of construction plant (see 14.6.1.3) will enhance the supply of such persons and engender the efficient use of plant and equipment.

Efforts should be made to encourage studies into the use of labour-intensive methods in road and civil engineering construction to relieve the constraint on this sector posed by inadequate plant capacity (see 12.6.2).

Plant capacity can be increased by continuing to encourage foreign firms to enter into joint ventures with local companies (see 12.6.5.7). This can have the desired effect if the local counterparts are established contractors rather than banks or other 'sleeping' partners. The former would be in a position to benefit from the equipment holding and expertise of the expatriate firm. Ghanaian firms could also be given preference on contracts financed by external agencies, which include funds for the purchase of plant. The best Ghanaian firms should be encouraged to tender for such jobs: government might have to convince the funding agencies about the necessity for additional percentage tender preferences, over and above agreed present levels.

Alternatively or additionally, arrangements could be made to purchase plant belonging to foreign contractors leaving the country after completing a project. This could be incorporated in the contract.

(3) Labour-Intensive methods of construction should be made possible or mandatory on single and two-storey buildings. This would necessitate the relaxation or review of prequalification criteria for Classes III and IV contractors (see 14.8(2)).

Efforts should be made to arrest the upward trend in wages to avoid a swing by contractors to capital-intensive methods of construction (see 12.2.2).

Studies into the use of large numbers of persons on the site should be mounted by the BRRI, and courses on appropriate organisational structures run by the institute for contractors' foremen and supervisors at a later stage. This study should embrace both traditional and modern construction methods.

Facilities for teaching traditional and rationalised traditional techniques should be established at the DHPR: Village Development Committees should be requested to nominate participants.

14.8.2. Medium Term

(1) Industrialised Building: Steps should be taken to incorporate the use of components made from local materials such as timber in the reinforced concrete building systems (see also 14.7.2.5).

(2) Plant: The results of the study into the best brands of plant and equipment (see 14.8.1.2) should be implemented. If the Oppong-Mansi steel project and the foundries are operative (see 14.7.2.3), spare parts for key items of plant could be produced under licence (see also 14.8.1.2).

Plant hire facilities should be extended by the Bank for Housing and Construction (see 12.6.2): a depot should be established in each of the nine regions and should include maintenance and repair facilities, and a training unit for operators and mechanics (see 14.6.1,3).

Government should institute a guarantee scheme for hire-purchase services to be provided for contractors by the commercial banks to enable them to acquire vital plant and equipment.

(3) Component Manufacture: Attempts should be made to standardise the sizes of the more common building components to aid their manufacture on a large scale (see 12.5,1). Most of this work should be done by the research institutions and the professional bodies and should be coordinated and implemented by the Standards Board.

(4) Labour Intensive: Studies into means of improving productivity should be intensified if labour-intensive methods are to remain economic. Measures could include training, the local production of tools or the introduction of simple mechanical aids such as block presses or concrete mixers (see also 14.8.1.3).

14.8.3. Long Term

(1) In the long term, plant should either be manufactured locally or in a sub-regional production unit, say, in cooperation with Nigeria (see also 14.7.3.4).

(2) In furtherance of government's policy of promoting technological advancement (see 12.6.5.7), local research should be blended with developments in the whole range of technologies in both the developed and developing countries. This implies better contact between Ghana's construction industry and those of other countries. In the long term the restriction on Ghana's attendance at international conferences, seminars and workshops should be relaxed (see also 14.7.3.3).

14.9. Procedures

14.9.1. Land

Ideally, procedures and legislation regarding the acquisition and use of land should be simple, rational, effective and well-disseminated (see 9.3.5). Suggestions of measures to achieve these attributes in matters related to land in Ghana are as follows.

14.9.1.1. Short Term

(1) The most pressing need in the short term is for a study and dissemination of various methods of land acquisition. Since the formulation or implementation of a single system is not possible at this stage (see 9.3.5), an attempt should be made to categorise the various forms and the areas in which they apply. This could be entrusted to the Land Administration Research Centre at UST, and the information should be well-propagated amongst Ghanaians in the form of a booklet, talks and radio and television programmes.

(2) The present system of obtaining title to land (see 7.6.1-4 and 9.3.2-3) could be decentralised in this way: the Lands Department should be empowered to process all the papers for any piece of land, and to pass these on to the regional courts of law for registration and final legitimation. The centralised system of deed registration seems superfluous since it has not been able to stop false claims or reduce litigation.

14.9.1.2. Medium Term

(1) The Survey Department should be strengthened with funds, staff and modern equipment to enable it to prepare a comprehensive national cadastral survey. Only when this is done, can claims to titles to land be checked (see 9.3.3).

(2) Legislation on land should be revised to reflect socio-cultural and metaphysical aspects of Ghanaians' estimation of the value of land (see 9.3.4). Guidelines for such legislation could be prepared by a committee composed of representatives of: the National House of Chiefs, Ghana Bar Association, Ghana Institution of Surveyors, Ministry of Lands and Mineral Resources, Ministry of Works and Housing, Land Administration Research Centre, and Department of Land Economy, UST, and the Faculty of Law of the University of Ghana.

It would be inappropriate in the present mixed economy and socio-political system to place all lands under central control. This would only compound the present delays, inefficiency and difficulties (see 9.3.3). Legislation should endeavour to reflect local variety, anticipate problems in each area and attempt to propose remedies (see 9.3.5).

(3) Some control on the use of land could be realised if government increased present development fees and used the funds to provide serviced plots to prospective developers.

14.9.1.3. Long Term

Land is a vital and, so far in Ghana, non-renewable resource. It behoves government to ensure that it is used in the most beneficial manner, satisfying competing needs and striking the proper balance between economic and other values.

14.9.2. Planning Permission

Whereas the need for some minimum standards in building cannot be disputed, standards should be formulated and applied with realism and pragmatism. Present regulations regarding physical development in Ghana are redundant because the machineries for implementing them are weak (see

9.4.6). It is important to have both appropriate building regulations and bye-laws, and the means of implementing them.

14.9.2.1. Short Term

(1) The Town and Country Planning Department should be strengthened with appropriate executive and financial powers at the district level (see 9.4.5). The experience of Tema Development Corporation as the planning, executing and municipal authority would be useful in this exercise. The fusion of the department with the district councils has, so far, been ineffective.

(2) Efforts to reduce the delays inherent in the vetting of drawings at regional capitals, where development is most rapid and delays longest, could include the addition to the technical subcommittees of the Statutory Planning Commitees, of regional structural engineers of the AESC and the Regional Medical Officer of Health (see 9.4).

(3) At this stage, attempts at rationalisation of the building regulations would only involve the national conference referred to above (see 14.7.1.4).

14.9.2.2. Medium Term

(1) The planning legislation should be revised. This would use the report of the Land Use Planning Committee as a basis (see 7.6.4 and 9.4.5.1).

(2) The Town and Country Planning Department should avail itself of the research results of the DHPR and the Department of Planning of UST (see 10.5.1). It could ameliorate its own lack of a data base for action by proposing research topics to these two institutions and

arranging for support grants from government. Such topics could be assigned to individual or groups of final-year planning students as project tasks for their degree examinations (see 11.8.1.2). Thus the Town Planning Department would obtain data on density, space ratios, local purchasing power and local preferences to enable it to formulate more practical schemes (see 9.4.5.5).

14.9.2.3. Long Term

(1) New and appropriate building regulations should be drawn up by a committee composed of representatives of district councils, professional institutions, BRRI, Faculty of Architecture (UST), Ministry of Works and Housing, AESC and Ministry of Health. This should be done on a regional basis by two teams: one dealing with the northern sector (Ashanti, Brong-Ahafo, Northern and Upper Regions) and the other with the southern sector (Western, Central, Eastern, Greater Accra and Volta Regions), each team considering one region at a time (see 9.4.4).

(2) Eventually, the Town and Country Planning Department should be enabled to develop into a strong, independent planning and executing agency, and physical planning should be accorded the same prestige and influence as economic planning (see 9.4.5.1-5). This would promote environmental health and social harmony in the face, or absence, of economic development.

14.9.3. Contract Documents

Contract documents should be simple, accurate and useful and reflect the nature of the local construction industry's operating environment as well as endeavour to promote the most beneficial contractual relationships among participants in the construction process (see 9.5).

14.9.3.1. Short Term

(1) The lack of awareness among clients of the nature of the construction process implies that, in the short term, pre-contract periods will continue to be short and there is the need for greater cooperation amongst consultants to make the best use of the time, to reduce errors and inconsistencies in production information, and to adopt a more sympathetic attitude to contractors (see 9.5.2-6).

(2) The Department of Building Technology (UST) should be commissioned to write a pamphlet on "The Organisation of the Construction Process" for sale at a low price to the general public, and for distribution to various departments and parastatals. This could explain the duties of the participants, outline the various stages in the process, identify where bottlenecks are most likely to occur and indicate how clients could best help to relieve the problems of the industry (see 11.8.1.3-4 and also 14,6.1.5).

(3) Much could be gained by greater understanding and joint effort amongst the professional institutions and the contractors' association (see 9.5.7). The activities of the various bodies, such as seminars, lectures and conferences, should transcend institutional boundaries. The task of promoting such an outlook should be entrusted to the technical directors of the Ministry of Works (see 7.3.1.1) who are themselves senior members of their respective professional bodies and are often in touch with executives of the Contractors Association.

14.9.3.2. Medium Term

(1) The GIA, GhIE, GIS, the Contractors Association and the Ministry of Works should establish a permanent working party to formulate and

revise contract documents, starting with standard methods of measuring building and civil engineerings works, continuing with appropriate forms of bills of quantities and schedules of rates for various categories of work and, eventually, drawing up standard forms of conditions of contract. Government should promote the formation of the party and provide a supporting grant for it (see 9.5.2-7).

(2) The working relationships between individual professionals and the different bodies will improve when the products of UST, trained in a cross-discipline manner (see 11.8.1.3), have become established in the field.

(3) Standard specifications (see 9.5.3) are useful as a means of economising effort and making the most of the low executive capacity but they need to be revised to reflect local conditions and reviewed building regulations, and should incorporate greater flexibility in materials and methods of construction (see 14.9.2.3.1).

14.9.3.3. Long Term

The joint working party (see 14.9.3.1.4) needs to be a permanent feature though with changing membership to enable it to undertake occasional reviews of contract documents to keep them in step with changing conditions in the industry and its environment.

14.9.4. Tendering

The public sector's tendering policy can be used to support the development of the best or most dedicated construction firms. Whereas it is not practical to legislate for private clients in terms of forms of tendering, it is wise to increase their knowledge of the merits and demerits of various forms in relation to the nature of their

construction needs.

14.9.5.1. Short Term

(1) The cost ranges of projects awarded by the different tender boards need to be revised. The Central Tender Board should have the final say only on contracts worth over ¢1 million (see 9.6.1-5).

(2) Present circumstances do not allow the use of open tendering on all projects as prescribed by government policy (see 9.6.7). It is more advisable to recognise this fact in order to be more able to outline guidelines for the various tender boards and to devise ways of reducing or detecting corruption and other non-administrative activities. Such guidelines could include, for example, the way in which contractors should be selected for shortlisting on various types of projects (see 9.6.8).

(3) The extensive powers of the chairmen of the tender boards (see 9,6.7) should be curtailed and greater weight given to the advice of the professional members of the board.

14.9.4.2. Medium Term

(1) The Department of Building Technology (UST) should be commissioned to write a small pamphlet on "Tendering", explaining the characteristics, advantages and disadvantages of alternative forms of tendering for publication by the Ghana Publishing Corporation and for sale to the public (see 11.8.1.3-4; 14.6.1.5; and also 14.9.3.1.2).

(2) Tendering can be used to support the development of effective and efficient contractors. It is, therefore, necessary to adopt

imaginative and dynamic tendering policies for various types of construction contracts. There is a need for a basis of categorising projects into groups such as those that should be used as a means of training contractors (see 15.12.9), those on which time is of the essence and those on which economy and/or sophistication is essential. Considering the variety of desirable objectives for construction (see 3.8 and 14.2), it is inappropriate to adopt a wholesale approach to tendering (see 14.9.4.1.2).

The categorisation should be annual and should be entrusted to regional branches of AESC and GHA and, at the national level, the Ministry of Works and Housing. When this is done, each contract should be awarded on its own merits.

(3) It is essential that the Ministry of Works and Housing is enabled to play a greater role in the award of construction contracts: it should be given greater influence on the Central Tender Board (see also 14.9.4.1.3).

14.9.4.3. Long Term

(1) Eventually, tender boards for construction projects should be separated from the general tender boards and placed under the Ministry of Works and Housing. Tendering for construction is dissimilar to those for other items: it cannot be based solely on economic considerations (see 14.9.4.2.2) and is best handled by persons with knowledge and experience in it (see also 14.9.4.1.3).

(2) Attempts to curb the incidence of corruption in the award and administration of construction projects should be made by government, the contractors assocation and professional institutions. Clear and simple guidelines and statements of procedures at each

stage of the construction process would be helpful in this sphere (see 9.6.7; footnote 62 of Chapter 9 and 14.9.4.1.2).

14.9.5. Contract Administration

The system of paying contractors for the work they do was considered the most important aspect (see 9.7.1) of contract administration. To support the effective development of construction firms, there is the need for a simple and expeditious payment system which, while ensuring accountability in the public services, does not adversely affect contractors' operations.

14.9.5.1. Short Term

(1) The method of managing public finances (see 7.5.1) prescribes the procedure for paying contractors. Thus the latter cannot be altered in a hurry (see 9.7.5). There is, however, the need for rationalisation, an effort to reduce the bureaucratic nature and the length of the process. Guidelines for such an exercise should be formulated by a committee made up of representatives of AESC, GHA, the Contractors Assocation, and the Ministries of Finance, Economic Planning and Works and Housing, or from memoranda submitted to a sole commissioner by these bodies.

This would involve, for example, the issuing of instructions to signatories on the appropriate approach they should adopt to their task or the elimination of some of the steps within the ministries.

14.9.5.2. Medium Term

(1) The publication of the "Organisation of the Construction Process (see 14.9.3.1.2) will engender amongst officials a more sympathetic attitude to contractors.

(2) The reorganisation of government's financial administration (see 14.9.5.1.1) should be a medium-term priority. Alternative arrangements for financing construction projects should be devised, such as:

(a) decentralising funds for projects on a regional basis and making the Regional Commissioner the final signatory of all payment certificates; or

(b) entrusting funds for development projects directly to the AESC, GHA and PWD, and making their administrative heads the final signatories of payment certificates. This would still maintain the national outlook and offer a check against collusion between contractors and individual officials. The processing should be done through administrative channels to relieve the contractor of the burden of carrying the certificate from one stage to the next (see also 9.7.5).

14.9.5.3. Long Term

Attempts to curb the incidence of corruption in the award and administration of construction projects should be made by government, the contractors association and professional institutions. Clear and simple guidelines and statements of procedures at each stage of the construction process would be helpful in this sphere (see 9.6.7.; footnote 62 of Chapter 9 and 14.9.4.1.2).

14.10. Planning

A plan remains academic unless it is accompanied by the political commitment and the economic means to implement it. Thus plans need to be realistic, with an assessment of the resources and the administrative machinery to implement them. This implies the existence of accurate data for planning which, in turn, calls for a nationwide information-gathering system (see 8.7). Planning and plan implementation for the

construction industry in Ghana can be improved by adopting the following strategy.

14.10.1. Short Term

(1) As a major priority, government should develop a commitment to all its programmes. In other words, programmes should not be published unless government has the intention of diligently fulfilling them (see 8.2.3).

(2) The Ministry of Economic Planning should be empowered, at both the regional and national levels, to exert a controlling influence on the plans and budgets of other ministries, departments and parastatals (see Fig. 8.1 and 8.3.1.1). Only thus can uni-sectoral development be avoided and some realism incorporated into plans and plan implementation.

(3) Arrangements should be made for final-year students of the Department of Building Technology, UST, to estimate and phase out, annually, typical designs of public buildings (see 11.8.1.2; 14.6.1.6 and 14.6.2.5) and other designs should be entrusted to the AESC. In this way, projects would be costed and programmed with some accuracy (see 8.3.1.2).

(4) Government should institute measures to control the award of contracts by its officials to prevent or reduce the incidence of 'extra-budget' projects (see 8.3.2). Instructing contractors to inquire about projects is not completely fair since it involves them in some expense.

(5) In view of the present weakness of the Central Bureau of Statistics (CBS) (see 8.2.6 and 8.2.6.1), the Institute of Social Scientific and Economic Research, Legon, and the Departments of Mathematics at the University of Ghana and UST should, in association with the CBS and the Bank of Ghana, develop methods of predicting with some

accuracy,

(a) government revenue, and

(b) the nation's receipts of foreign exchange.

(6) Annual Estimates should be less dense in the number of projects (see 8.3.3) and the financial allocations for each project should bear a close relationship to what the average contractor would do in a year (see 14.10.1.3), with some allowance for variations and inflation.

(7) The number of projects awarded in a year should be related, albeit roughly, to the availability of resources. Where materials and finance are short, it is best to suspend the initation of new projects to enable available resources to be concentrated on the completion of on-going ones. Half-finished projects are not useful in themselves and are also wasteful in terms of tied-down resources (see also 8.7).

14.10.2. Medium Term

(1) The data base for planning should be improved by strengthening the CBS and improving its relationships with the research institutions (see 14.10.1.5). The Bureau's effort could be augmented by the collection of data on construction by the district councils, and by small units for collecting information in the more important bodies such as AESC, PWD and GHA.

(2) The CBS should publish in a separate document annual information on construction: such as gross output, value added, employment, capital formation, consumption of broad types of materials, in addition to its present publication on building costs.

(3) The CBS and BRRI should be entasked with ascertaining- annually, national requirements and levels of production of key construction materials to provide the basis for resource planning for the

construction industry (see 8.4).

14.10.3. Long Term

(1) Future development plans should recognise construction as worthy of being placed under a definitive chapter, as opposed to the present diffused apporach (see 8.7).

(2) Finally, the planning of the development of the industry followed by conscientious and persistent application, effective monitoring and review, will enable it to grow in step with the economy generally (see also 3.4).

14.11. Government and Construction

In view of the place of construction in the economy (see 6.2 and Appendix A) and the large volume of output due to the public client (see 6,5.2), government, having assumed responsibility for the development of the industry, should ensure that:

(1) general economic and administrative policies are not detrimental to the growth of the industry (see 6.5.2 and also 3.6.1-3);

(2) all aspects of construction, necessarily controlled by different ministries, are effectively correlated (see Chapter 7);

(3) the Ministry of Works and Housing is given the required prestige and authority to perform the above tasks (see 7.9.1); and

(4) the organisations subordinate to the Ministry of Works (see 7.3.1.4-5 and 7.3.2-5) are enabled to execute their tasks.

The strategy for achieving these objectives would be as follows.

14.11.1. Short Term

(1) The staffing problems of the Ministry of Works and its subordinate organisations (see 7.9.3) should be attended to. One way of doing this would be the provision of accommodation with professional posts in such bodies, as was the practice in the past. Thus

government would acquire some houses built by the State Housing Corporation, the Social Security and National Insurance Trust and other developers. Such houses could be in bricks or timber since their prospective occupants would know more about the materials and would be less apathetic towards them (see 10.8.7).

(2) The subordinate organisations should be provided with adequate import licences to obtain spare parts and some vehicles to increase the mobility of their staff and hence improve their executive capacity (see 7.9.4).

Intra-organisational friction (see 7.9.2) could be reduced if there were equal chances of advancement for all the professions. Government should formulate and issue instruction to this end. It is important,too, that restructuring or reorganisation (see 7.3.1.5-7) of these bodies are kept to a minimum.

The organisations should improve their links with the various parts of the industry and follow developments in its environment to enable them perform their duties as technical arms of the Ministry of Works, and hence government (see 7.3.1.8).

Government should institute measures to promote cooperation between AESC and GHA. These could include insistence on their sharing facilities such as office equipment and accommodation, transport and personnel, and the assignment to them of tasks requiring their joint effort (see 7.3.1.6).

14.11.2. Medium Term

(1) It is important that all ministries and departments whose operations have some implications for the construction industry (see 7.4-8) are enabled to perform satisfactorily. It is necessary, too, that their activities are given some direction and integration.

(2) The Ministry of Works and Housing should act as a point of focus

for all matters directly related to the prosperity of the industry, such as production and supply of materials, manpower development and finance for both public and private sector projects, as well as being placed in an advisory position in a variety of policy decisions such as fiscal and labour policies and the desirable rate of economic development. Within the Ministry, effort should be made at reducing conflict and rivalries between professional personnel and civil servants to enable the greatest benefit to be obtained from the skills and experience of each cateogry (see 7.3.1.1).

(3) The subordinate organisations have certain assets that can be developed to further advantage. For example: the GHA has a training department which has played a pioneering role in post-qualification training of graduates, training of illiterate or semi-literate persons, and the organisation of training on the job or at district offices (using previously trained supervisors). It has developed modules and aids for such courses. Its advice would be invaluable to the UST, NVTI and MDPI (see 14.6.1-3).

14.11.3. Long Term

The Ministry of Works and Housing should be given greater prestige in the community of public bodies. This might necessitate adjustments in the allocations of duties of the ministries and departments and might be difficult, but it is a worthwhile long-term goal if the eventual development of an efficient and prosperous construction industry is to be a reality (see also 14.11.2.2).

14.12. Summary

A summary of the above measures is now presented in tabular form.

MANPOWER DEVELOPMENT

Short Term	Medium Term	Long Term
1. Establish a unit at Ministry of Works and Housing to coordinate training and education for construction.	1. Expand physical facilities and increase intake into courses.	1. If need for manpower increases, faculties for construction should be included in any envisaged new university.
2. NVTI to organise and coordinate all apprenticeships and expand its schemes.	2. Government to delegate responsibility for trades training progressively to CEBCA.	2. If need for manpower falls, arrangements to be made to lend personnel to other english-speaking African countries.
3. Institute training for operators and mechanics of plant.	3. MDPI to establish a construction unit.	3. Attempt to relieve intra- and inter-organisational frictions, rivalries and non-cooperation.
4. Train instructors for technical institutes. Professional institutions to attend to technician and licentiate grades.	4. GHA, AESC and PWD to establish institute for training technicians.	
5. Complete central classroom block at UST; rehabilitate workshops and laboratories; incorporate part-time teaching; improve links with research bodies and industry.	5. Staff and students of UST to be used to relieve manpower shortages in construction organisations.	
6. Attempt to revise syllabi and training background; intensify multi-disciplinary training and revise practical training arrangements.	6. Attempt to reduce residential bias of education and training in Ghana.	
7. Study ways of making employment in construction attractive to higher calibre of persons, and ways of retaining public-sector construction employees.	7. Run orientation courses for expatriates and Ghanaians trained abroad.	

MATERIALS

Short Term	Medium Term	Long Term
1. Ministry of Works to assume direct control of the materials development programme.	1. Implement the results of BRRI's study of limestone production.	1. Establish a bitumen plant at Tema.
2. Rationalise imports: put emphasis on spares for rehabilitating existing factories.	2. The aluminium venture at Kibi will relieve the burden of aluminium imports.	2. Establish second kiln at Shieni ore deposits, if necessary.
3. Establish a committee to take stock of available research findings in construction.	3. Iron and steel plant at Oppong-Mansi, foundries and the second steel factory at Kumasi to be completed.	3. Government to promote regional ventures in building materials in West Africa.
4. Initiate social research to identify and classify preferences for types of materials.	4. Knowledge of and interest in indigenous materials will increase as a result of the revision of syllabi.	4. Export any surplus materials to neighbouring countries.
5. Hold national conference on indigenous materials; reorganise their promotion; goverment to give lead in their use.	5, Establish timber preservation depots in the forest areas.	
6. Increase production of block presses to exploit the potential of landcrete blocks as a national substitute for sandcrete.	6. Increase brick production to relieve shortages.	
7. Rehabilitate and complete existing brick factories.	7. Pay attention to energy issues; intensify research into local sources of cheap energy.	
8. Promote timber amongst the middle class.	8. Establish factory for sanitary products at Nkawkaw, Anfoega or Asamankese.	
9. Disseminate methods and materials for improving traditional materials and structures.		
10. Train persons in production management to run the factories.		
11. Standards Board to control the quality of materials to engender public confidence.		

TECHNOLOGY

Short Term	Medium Term	Long Term
1. Provide the Precast Concrete Panel factory with its vital inputs to enable its potential to be utilised. Rehabilitate African Timber and Plywood's factory at Samreboi.	1. Use components from local materials in system buildings.	1. Manufacture plant locally or in a sub-regional unit.
2. Rehabilitate and rationalise construction plant. Import spares to service broken-down plant; initiate study to standardise plant and equipment.	2. Implement result of study on standardisation of plant and equipment; produce spares for plant under licence in the new foundries.	2. Maintain close contact with other countries to ensure the development of technology at all levels.
3. Encourage joint ventures between Ghanaian and foreign firms with the latter providing key plant.	3. BHC to establish plant pools in each region, incorporating servicing centres and training facilities.	
4. Initiate studies into labour-intensive methods in road and civil engineering construction; study ways of using labour effectively in construction; and formulate policy on technology for various sizes and types of projects.	4. Government to institute guarantee scheme for plant hire-purchase by contractors.	
5. Attempt to restrain the upward trend in wages in construction to avoid wholesale adoption of capital-intensive methods.	5. Intensify standardisation of more common building components.	
	6. Mount studies into ways of improving productivity.	

PROCEDURES

Short Term	Medium Term	Long Term
Land		
1. Mount a detailed study of methods of land acquisition.	1. Strengthen the Survey Department to enable it to perform its tasks.	1. Ensure proper land management and balance among competing uses and values.
2. Decentralise system of obtaining title to land by making greater use of Lands Department.	2. Revise legislation on land to embody non-material factors; stream-line procedures.	
	3. Control use of land by providing serviced plots from increased development fees.	
Planning Permission		
1. Strengthen the Town and Country Planning Department.	1. Revise planning legislation.	1. Formulate new, appropriate building regulations.
2. Reduce delays in vetting drawings.	2. The Town and Country Planning Department to make greater use of the findings of the research bodies, and UST.	2. Enable the Town and Country Planning Department to grow in prestige, influence and executive ability.
3. Organise conference on indigenous materials for planners, administrators and professionals.		
Contract Documents		
1. Greater cooperation among professionals to ensure best use of short pre-tender periods.	1. Establish a permanent joint working party to revise or formulate contract documents.	1. The joint working party to continue to review documents and procedures in response to changes in the industry and its environment.
2. The Department of Building Technology, UST, to write a pamphlet on "The Organisation of the Construction Process" for national dissemination.	2. Inter-professional relationships will improve with the intensification of multi-disciplinary training at UST.	
3. More understanding and cooperation between professional bodies and the contractors association.	3. Revise standard specification to reflect local conditions.	

cont'd

PROCEDURES (cont'd)

Short Term	Medium Term	Long Term
Tendering		
1. Revise cost ranges of projects awarded by various tender boards. 2. Outline guidelines for the operations of tender boards. 3. Reduce powers of chairmen of tender boards.	1. The Department of Building Technology of UST to write a pamphlet on "Tendering". 2. Projects to be categorised and awarded on a pragmatic basis. 3. Ministry of Works and Housing to have greater influence on the Central Tender Board.	1. Tender Boards for construction to be separated from general tender boards. 2. Attempt to curb corruption in award and administration of contracts.
Contract Administration		
1. Establish a committee to study ways of rationalising the payment system on public projects.	1. The publication of "The Organisation of the Construction Process" will engender greater sympathy for contractors from officials. 2. The report of the committee on the payment system for public projects should be implemented.	1. Issue clear and simple guidelines for each stage of the construction process to reduce corruption in contract administration.

PLANNING

Short Term	Medium Term	Long Term
1. Government to show greater commitment to its published programmes.	1. Improve data base for statistics.	1. Development plans to consider construction in a definitive chapter.
2. Ministry of Economic Planning to be enabled to correlate and control all annual plans of various bodies.	2. The CBS to publish data on construction in a separate complete document.	2. Planning for construction to be accompanied by application, monitoring and review.
3. Students at the Department of Building Technology, UST, to phase out typical designs.	3. The CBS and BRRI to ascertain annual national needs of key construction materials.	
4. Government to institute measures to control award of construction projects.		
5. The Institute of Social and Scientific Research, Legon, and Departments of Mathematics at UST and University of Ghana to help the CBS in its work.		
6. Annual Estimates to be realistic in terms of contractors' performance.		
7. Number of projects awarded annually to be related to availability of resources.		

GOVERNMENT AND CONSTRUCTION

Short Term	Medium Term	Long Term
1. Attend to staffing problems of Ministry of Works and subordinate bodies.	1. Enable ministries and other bodies controlling aspects of construction to perform satisfactorily.	1. Ministry of Works and Housing to be given greater prestige in the community of organisations.
2. Provide subordinate bodies with import licences for key equipment, vehicles and spares.	2. Ministry of Works and Housing to act as point of focus for matters directly related to the prosperity of the construction industry.	
3. Maintain stability among the subordinate bodies and promote cooperation between them.	3. Develop subordinate bodies to their full potential.	
4. Improve links between subordinate bodies and various parts of the industry.		

CHAPTER 15

CONTRACTOR DEVELOPMENT

"Management manpower is in very short supply in almost all developing nations ... The development of local educational centres, the use of expatriates as a training mechanism, and the use of computers are ... possible means of alleviating the problem ... In addition, contractual arrangements, bidding practices and the manner of selecting contractors all require substantial improvements. Financing problems arise both for working and investment capital. High interest rates, lack of adequate credit with ... suppliers, the unavailability of rental equipment, lengthy delays in payments, ... are serious issues facing local contractors in most developing countries."

- Moavenzadeh, F., Construction Industry in Developing Countries, in World Development, 1978, Vol. 6, No. 1 (pp. 97-116), p. 114.

"It takes a lot of sophistication to be simple ... Construction is a messy business, which is better left to the messy crafts and contractors. With the critical shortage of experienced foremen ... the best expertise available is still probably in the hands of the despicable 'basses'. Turn them into salaried 'clerk of works', filling in a day-sheet and half a dozen administrative forms religiously filed in dusty cupboards, and you have lost one of the main springs of construction initiative."

- Turin, D.A., Construction and Inefficiency (On the Construction Industry of Sri Lanka), mimeo, University College London, p. 9.

15.1. Introduction

Improving the competence and effectiveness of contractors in Ghana should be the first priority of any programme to improve the construction industry for the following reasons:

(1) although proposals are made for its improvement, contractors' operating environment will not change for the better in the immediate future. Thus it is neccesary to develop contractors who can operate in such difficult conditions;

(2) developing sound construction firms is a long process fraught with obstacles and mistakes, and the earlier a start was made, the better, especially since;

(3) a strong base for an indigenous contracting sector needs to be developed not only to reduce the drain on foreign reserves caused by the use of expatriate firms, but also to prepare for the eventual departure of the foreign firms when better prospects emerge in their home country or elsewhere, and/or when demand for the sort of projects for which their skills are specially suited (see Chapter 4) falls, or when local conditions such as the imposition of exchange controls or limits on expatriate personnel, make it difficult for them to operate;

(4) the need for mobility and flexibility in the contracting sector is greatest and can compensate for lack of success of the proposals for other sectors of the industry: contractor development is the best bulwark of any programme for improving the industry generally (see 14.2); and

(5) finally, the resources needed to support any programme of contractor development can be obtained locally, and the institutional infrastructure exists in Ghana. (See 13.7.2 and 13.8).

15.2. Nature of Demand and Contractors' Response

Construction projects are usually buildings or works of a particular size, using types of materials and/or techniques, and at a location, all three attributes predetermined by the client and his consultants (see also 3.6.4-6). Moreover, the time for the execution of the contract, and an indication of a range of its cost, are fixed.

In certain instances, subcontractors and suppliers of some materials are nominated, leaving the contractor little room for manoeuvre and entrepreneurial judgement.

Faced with this demand matrix, contractors specialise by type of

work, by geographical location, or by size of project. They also place a limit on the number of projects they undertake at a time (see also 3.6.5). In Ghana, some of these decisions, especially size of project, are made for the contractor by the registration authorities (see 13.3).

At one extreme, the larger firms have the resources to undertake any size of project, although they may specialise in buildings or in civil engineering, in any part of the country and involving any technology, limited only by the amount of work they already have in hand and their corporate aims. At the other end of the spectrum, some firms can only operate in a small geographical area on a small range of projects, determined by cost and type of technology (see 13.6.1).

Thus there is a matrix of firms of varying ability and mobility, determined not only by their resources but also by their corporate objectives. The position in which any firm finds itself in this matrix is usually determined by economic as well as historical factors (see 13.3.1).

15.3. Strategy

The present situation in Ghana is that of a dearth of firms at the large end of the scale and a proliferation of smaller ones (see 13.4). The strategy is to permit and support the development of dedicated and most promising firms, and thereby increase the number of larger firms.

Thus a dynamic process is envisaged which would identify and provide for the special needs of the main categories of firms. This strategy can best be formulated by studying, in some detail, the structure of a typical construction establishment.

15.4. The Enterprise

Although it is possible to consider a business organisation in a

variety of ways, depending upon the purpose of the analysis, our interests are best served here by using the systems approach. Each enterprise may be considered as consisting of two basic parts: the formal and informal systems. The formal system is more obvious, composed of the persons in the organisation and depicted in organisational charts. The informal system arises as a result of the relationships between individuals and groups in the organisation. In recent times, the nature of business and other organisations have been understood to be very complex.

15.4.1. Formal System.

The formal part of a business organisation would be composed of:

(a) A sensor subsystem to measure changes within the organisation and to provide an interface with the environment (market intelligence, new materials or methods, imminent legislation).

(b) An information processing subsystem, for example, accounting or data processing (estimating and cost accounting).

(c) A decision-making subsystem which receives information and emits planning messages (contractor's decisions eg. adjudication).

(d) A processing subsystem which uses information, energy and materials to accomplish certain tasks (site activities).

(e) A control component which ensures that processing is in accordance with planning (cost control).

(f) A memory or information storage subsystem (records, manuals), computer programmes or human experience (past priced bills of quantities; experience which builds up prestige and the ability to attract contracts and loans)[1].

The decision-making subsystem is considered in detail below for reasons stated in 15.4.5.

15.4.2. Informal System

In addition to, and tending to modify this formal system, are a number of other systems called "overlays" by Pfiffner and Sherwood (1960)[2]. Thus the informal part of the organisation is complex and variable. If the business set-up is to operate successfully then there is a need for complete integration of its parts. The various components must be so closely related that the system becomes an operating, integrating whole. Angyal (1941) suggests that the system must be seen, "... not as interacting parts, not as constituents which have independent existence, but as aspects of a single reality which can be separated only by abstraction"[3]. The system should also be flexible so that subsystems may be created, expanded or dissolved as the need arises.

15.4.3. The Environment

The business system operates in, and is itself, a subsystem of a a number of successively larger systems: the industry, the region, the nation or society as a whole. It operates in an environment in which exist its opportunities as well as obstacles. The enterprise is, therefore, a dynamic organism in constant interaction with its environment and as a result growing smaller or bigger.

The environment is constantly changing and exerts various influences on the enterprise, which may be beneficial or harmful. From this uncertain environment the enterprise obtains its resources, draws ideas, sells its products and meets competition. The organisation can be successful only if it can take advantage of or create beneficial factors, and finds ways of counteracting the harmful ones.

15.4.4. The Construction Firm's Environment

Although the factors which might promote or frustrate the activities of the enterprise differ with the type of activity and its location, they fall under five main headings: Political, Economic,

Social, Technological and Environmental[4].

A construction firm in a developing country may be influenced by the following factors:

(a) Economic: state of markets; availability of funds for mortgages and working capital; costs; availability of materials; and foreign exchange;

(b) Political: policies on employment, ownership, land, taxation and industry; licensing; and international agreements.

(c) Social: attitudes of the populace to work; spending habits; and attitudes to types of materials;

(d) Technological: methods of construction; rate of development of materials and components; availability of plant and equipment; and

(e) Environmental: laws on pollution; pressure groups; regulations on the exploitation and use of materials. (See also 3.6-7).

These external factors are interrelated and interacting. For example, economic factors may generate political decisions affecting the enterprise, and environmental considerations may affect the choice of technology. The enterprise can also exert some influence on the environment in the above fields, depending especially on its size and area of operation. For example, a large construction firm building a dam in a rural area not only offers direct paid employment for local residents, but also gives rise to several ventures indirectly (trading, catering, etc) and the project it undertakes alters the social and economic conditions in the locality when completed (see 3.3).

The enterprise competes with others for resources and customers and needs to operate efficiently by exploiting any advantages it has. Finally, and especially for the construction firm, since it is inevitable that the firm will cooperate with others (see 3.6.6), it must have the means for maintaining viable coalitions with them.

15.4.5. The Decision-Making Subsystem

The decision-making subsystem in the enterprise is made up of the individual or team performing the entrepreneurial function. Although the success of the business as a whole depends upon the smooth integration of the various subsystems, it is clear that the quality of the decision-making element makes most of the difference between success and failure. The ability of the entrepreneurial team to make use of or create beneficial factors in the environment and overcome harmful ones is essential. Thus, having correctly discovered or predicted environmental factors, and processed information on them, there is the need for judgement and technical ability if the right decisions are to be taken. It is necessary, therefore, to consider the entrepreneur in greater detail.

15.4.6. Clarification

Ghana has a mixed economy (see 6.3) and there are some direct-labour organisations and a state-owned construction firm (SCC) in addition to private contractors (see Chapter 13). The term entrepreneur is used to refer to persons or teams in decision-making positions in these enterprises: directors or managers of the direct-labour organisations, the management team of SCC, and the proprietors of the private construction firms.

15.5. The Entrepreneur

The entrepreneur is identified as the person who performs the function of leadership in the business organisation: he owns and/or controls capital, organises the factors of production and, in most contexts, has a capacity for innovation[5]. The head of a construction firm is, therefore, to all intents and purposes an entrepreneur and, in order to understand the lack of or the embryonic nature of indigenous

construction firms in Ghana, despite seemingly adequate attempts by government to encourage their emergence and growth (see 13.7), an overview of entrepreneurial theory is relevant.

15.6. Contributions to Entrepreneurial Theory

Many writers[6] agree that a study of the role of the business leader started with the works of Cantillon (1755) and Say (1821). The early works were, however, confined to the definition of the term 'entrepreneur' and of the role of entrepreneurs in economic systems. Questions as to whether there were any forces which tended to recruit certain individuals or groups into entrepreneurship, whether entrepreneurs required any psychological attributes and whether there were any special factors which determined how well or badly an entrepreneur performed, began to be considered only in this century.

15.6.1. The Protestant Ethic

Weber (1904)[7] traced "the spirit of capitalism" (the body of ideas and habits which favours the pursuit of economic gain) to the teachings of the Calvinist movement in the 16th and 17th centuries, which called on men to devote all their strengths to their secular activities "to the greater glory of God", to live frugally and earn their salvation through good works.

This theory has been criticised: some studies[8] have shown that capitalism is much older than the Reformation; and that many of the factors which led to the advent of capitalism were adopted by the Europeans from several lands, such as financial science and systematic book-keeping from the Moslem Arabs and Syrians, centuries earlier. Papanek (1962)[9] found that, in Pakistan, large numbers of Moslems turned to innovative entrepreneurship for achievement and profit, although the Islamic faith did not particularly encourage its adherents to pursue

such activities. Again, in the Philippines several Catholics turned to entrepreneurial activity when conditions were favourable[10].

Although Weber's analysis of some of the factors that spawned the rise of entrepreneurship in the 18th century might have been correct, today's conditions are much different and the attributes necessary for successful entrepreneurship might not be the same. However, the Protestant teaching of the importance of frugality and its development of people with investment rather than consumption orientations is of particular interest in our study of entrepreneurship in the developing countries (see 13.8.3).

15.6.2. Innovation

Schumpeter (1949)[11] referred to entrepreneurship as "innovation", suggesting that entrepreneurial activity stemmed from the profit motive and that economic development resulted from a multiplicity of entrepreneurial acts in which factors of production were applied to new activities. Schumpeter emphasised the importance of bank credit and the need to reinvest profits in entrepreneurial development. The unique role that Schumpeter attributed to the individual entrepreneur is questionable, especially since he considered entrepreneurship to be synonymous with innovation. Again, the profit motive is now recognised as only one of a variety of factors which engender the emergence of business organisations.

15.6.3. Dynamism

Penrose's (1959)[12] theory on the growth of the firm advocated the study of certain "intra-firm determinants" and the relationship of the firm with its environment, rather than the search for and study of individual entrepreneurs. It argued that in a firm it was an organised association of persons rather than individuals who played the entrepren-

eurial role.

The ability of a firm to grow depended on "all the productive possibilities its entrepreneurs can see and take advantage of", and such productive opportunity is a function of the quality of entrepreneurial services in the firm - 'enterprise', 'versatility', 'fund-raising ingenuity', 'ambition', and 'judgement' of the management team[13].

The management team of a construction firm needs another important attribute: 'contract-winning ability'. In Ghana this might entail not only having a good reputation and a competent estimating unit, but also knowing the right people in the right positions at the right time (see 9.6.7).

The theory is useful in its consideration of the firm in a dynamic manner but it lacks internal consistency: it starts by reducing the entrepreneurial role to the actions of a "single rational organism", but the "entrepreneurial services" it refers to are, essentially, personal attributes of the management team. Again, the value of the theory for our purpose is reduced by its reliance on the assumption that "... - there is not an effective limit to the amount of any kind of productive resources (capital, labour or management) that the firm can obtain at any price"[14], since in many developing countries the scarcity of these resources is an ever-present phenomenon and hence their availability cannot be assumed as given.

15.6.4. Studies in Developing Countries

In their study of entrepreneurship in the emergent nations both Hirschman (1958)[15] and Singer (1964)[16] identified a gap between "actual" and potential levels of investment. According to Hirschman, this gap was due almost wholly to the scarcity of business information. Singer attributed it to "the human, technological and data infrastructure" of the developing economy. Together, they introduced into the analysis of

the supply and performance of entrepreneurs the availability of information, the supply of personnel with requisite technical qualifications and the familiarity of the general population with the possibilities of modern science and technology. Neither author explained why some foreign firms succeeded in the unfavourable environment, whereas locally-owned firms did not even emerge in some instances,

Considering the construction industry in particular, the inadequacy of information on it and the uncertainty surrounding activities in it are not confined to the emergent countries but are features of the industry that are evident in the advanced countries also (see 3.6.8 and 3.7). Singer's insistence on the necessity of the general population to be familiar with science and technology is invalidated by the sudden increase in entrepreneurial activity in Japan after 1868, in Pakistan after 1947 or the Philippines after 1946[17]. (See also 1.4.5).

After several empirical studies in Nigeria, Schatz (1964, 1965)[18] argued (like Singer) that the major obstacle to the expansion of private indigenous entrepreneurship in Nigeria was neither capital shortage nor deficiency in "entrepreneurial capacity" but "more general factors prevailing in the country as a whole": problems in securing in time the proper equipment, problems of human resources, of infrastructure, of supplies and of adequate markets. Again, the same factors did not hinder the establishment or expansion of locally-based expatriate firms. Schatz's claim that the quality of entrepreneurial services available to the firm played no part in the success of its activities (in contradiction to Penrose - see 15.6.3) is questionable.

Ironically, after another empirical study, Kilby (1966)[19] concluded that the problems met in trying to develop most modern medium-scale firms in Nigeria were ultimately related to "deficient entrepreneurial

activities"[20]; and Harris (1967)[21] found that the main impediments to the development of the firms he studied were poor standards of financial management and production control, and incompetent organisation.

15.6.5. Contributions by Sociologists

The foregoing mainly evaluates the contribution of economists to entrepreneurial theory. Sociologists, who see the process of development as involving the transformation of man and the social environment within which he performs his economic activity, consider the economic theories of entrepreneurship as inadequate. To them, entrepreneurial development is a function of the nature of the society and its cultural characteristics.

Parsons (1951)[22] theorised that a number of factors, among them certain value-orientations, universalism, achievement, functional specifity, and effective neutrality, were "prerequisites" for the emergence of effective entrepreneurs in the developing countries. This theory and several like it called for appropriate changes in value-orientations in the developing countries' societies. Thus it fails to explain the rapid emergence of entrepreneurs in Meiji Japan and post-independence Pakistan and the Philippines. (See 1.4.6 and 15.6.4).

Papanek (1962) writes, ".. it is difficult to interpret what happened in Pakistan in terms of a slow fundamental change in motivation, or in ideology, or in custom, which then caused an alteration in economic behaviour"[23]. Experience has shown that it is not necessary for a country's people to develop Western attitudes before their societies can develop (see also 1.4.6). It is pertinent to outline briefly the case of Meiji Japan[24], since it has several lessons for the poor countries.

The Meiji government formulated and popularised a progressive ideology, sought knowledge from all over the world and used the educational system to provide highly trained personnel and to increase the status of the occupations needed for a modern economy. It also

subsidised private industry by acting as its chief customer, and engaged itself directly in some economic activities. Thus, Drucker (1970) writes:

> "It is still almost axiomatic ... that social and economic development requires the abandonment of 'non-scientific', ie traditional cultural beliefs, values and habits ... That ... the assumption is little but Western narrowness and cultural ego-centricity, one look at the development of Japan would have shown"[25]

15.6.6. Contributions by Psychologists

Some psychologists have also studied the factors which determine the ability of societies to supply their own entrepreneurs and the likelihood of such entrepreneurs to succeed. (See also 1.4.5) Their approach is summarised by McClelland (1966) thus:

> "Is the need to achieve (or the absence of it) an accident, is it hereditary, or is it the result of the environment? Is it a single, isolatable human motive, or a combination of motives ... Most important of all, is there some technique that could give this will to people, even whole societies who do not not now have it?"[26]

According to McClelland (1961), entrepreneurs or persons with high nAchievement were developed by a particular configuration of parental values and child-rearing practices. The sources of this high nAchievement were: "early mastery training ... provided it does not reflect restrictiveness, authoritarianism, or rejection by parents"[27], the imposition of "reasonably high standards of excellence on the child at a time that he can achieve them together with a willingness to let him attain them without interference, ... overprotection and indulgence"[28].

McClelland asserted that

> "Whenever people begin to think often in nAchievement terms, things begin to move ... [the] nation does better economically ... careful quantitative studies have shown this to be true in ancient Greece, in Spain in the middle ages, in England from 1400-1800, as well as among contemporary nations ..."[29]

McClelland has devised courses aimed at introducing his 'nAchievement

virus' into people lacking it, and claims considerable success for its use in the United States, India and Mexico[30].

Hagen's (1962) hypothesis was that traditional society was "custom-bound, hierarchical, ascriptive and unproductive", with child-rearing practices that tend to produce "authoritarian" rather than "innovational"[31] personalities. The entrepreneur was produced in a historical sequence which started by an elite group in the society suffering a "withdrawal of status respect" reacting first by anger and anxiety and its later generations by "normlessness" and "retreatism", and eventually by "creativity"[32]. Hagen, therefore, agreed with McClelland that the fundamental factors which caused the emergence and performance of entrepreneurs were psychological.

Although the psychological approach may correctly outline ways in which persons positively disposed to the entrepreneurial role may be produced, it fails to show how people may actually enter or be made to enter it instead of any of the other competing roles. It is also inadequate in explaining how a business may succeed or fail. By ignoring economic factors such as availability of capital, skilled labour, raw materials and machinery, the market and distributory channels, its value is minimal since these factors vary from place to place and different types of skills are required for the successful organisation of the factors of production in any given context. For example, in some developing countries where corruption is rife, Akeredolu-Ale (1975) rightly points out that "...

> "... if the 'inner standards of excellence' by which high nAchievement persons are ruled are what one would expect them to have ... a man with high nAchievement would be scrupulous, and would not go far in business at all ... Apparently success in such a situation might require a different set of 'needs' ... a man could fail in business, precisely because he has high nAchievement."[33]

15.6.7. Literacy

Some students of economic history attribute the rise of capitalism during the Reformation to the Protestant emphasis on Bible-reading literacy rather than the ethic for hard work as suggested by Weber (see 15.6.1). Similarly, the talent for entrepreneurship among Jews, Japanese and Chinese is sometimes traced to the possession by these people of sacred texts[34]. Several writers note a rough correlation between high per capita national income and high per capita public expenditure on education, although it is not clear whether nations spend more on education as their income increases, or that education is a vital factor that increases national income[35]. For example, Kendrick (1951)[36] found that 46 per cent of the increase in total output in the United States between 1889 and 1957 may be attributed to what he referred to as "total factor productivity", of which educational advances are the major part, although it includes many other unspecified inputs such as increase in the quality of capital assets, improvement in national health, organisational changes, and so on. Anderson (1963)[37] studied historical data on a sizeable number of countries and concluded that any country, if it is to stand at the threshold of industrial development, must teach about 40 per cent of its adults to read and write. (See also 1.4.7).

Whereas there are many virtues to be derived by a nation from a largely literate populace, literacy as such is not as important as the acquisition of the right type of education and training. Furthermore, although a minimum level of formal education might be necessary for successful operation in modern business, whether an educated person actually becomes an entrepreneur, and succeeds as one, depends on the type of education he had, the nature of the operating environment and the availability to him of the means of acquiring factors of production. (See also 11,12.4).

Studies on the role of education in entrepreneurial development are not unanimous in their conclusions. Whereas Carroll (1965)[38] found the level of education of Filipino entrepreneurs to be higher than that of the majority of their contemporaries, Papanek (1962)[39] found no such difference between these two categories of persons in Pakistan. Finally, since organisational skills vital to businessmen are developed in the work situation, practical experience may compensate for lower levels of formal education.

15.6.8. Entrepreneurial Theory and Ghana's Experience

The above discussion shows that entrepreneurial development is a complex issue calling for a multi-disciplinary approach from historians, economists, sociologists and psychologists. What exists, however, is a number of theories, each of which explains a few aspects of the matter, and some of which are not internally consistent.

Entrepreneurial activities are pursued in Ghana in several fields but, invariably, the scale of operations are small. Those who tried to establish large ventures faced problems in the beginning:

> "There had been, true enough, a long history of capitalist venture by West Coast Africans. As early as 1880 Africanus Horton and others in the Gold Coast ... had tried - and failed - to float a syndicate to mine gold."[40]

At independence it became a question of providing finance for prospective businessmen, and not sufficient of the latter could be found[41]. Government, thus, performed most new etrepreneurial functions itself through public corporations (see 6.4.1-5). Providing finance to entrepreneurs proved wasteful (see 13.7.2.1.5). The issue now is that of providing finance, some training, support services and opportunities of obtaining experience to entrepreneurs. That is, improving the quality of the entrepreneur, the firm and its environment (see 15.4.1-5). The issue of developing efficient and effective contracting organisations in Ghana is now discussed.

15.7. Types of Construction Organisations

Contracting organisations operating in Ghana may be classified according to the form of ownership. There are four main groups:

(a) public-owned firms

(b) direct-labour organisations

(c) cooperatives, and

(d) capitalist firms.

Programmes for improving contracting capacity need to utilise the special strengths and benefits of each category and identify areas in which emphasis may best be placed. Thus it is relevant to consider the prospects of bringing about progress in each category in order to find out one or more on which the strategy for achieving the more effective and efficient contracting sector can be based.

15.8. Nationalisation

The public-owned, commercial SCC exists with direct labour public sector organisations such as the State Housing Corporation and PWD. In view of the problems that confront construction concerns in Ghana (see 13,5.3-4) it might be argued that government should take over all construction activity, or at least, those areas in which needs are most acute such as in thelarge-firm class (see 15.3). This could take the form of creating one or more additional state-owned construction corporation(s), or the establishment of district or regional direct labour or commercial construction units nunder the Regional Development Corporations or District Councils, or by expanding existing direct-labour organisations such as the PWD, the GHA and the Housing Corporation.

This approach would not be successful in Ghana because:

(1) unless a major change in economic policy (ie total socialisation) occurs, or except the whole construction industry is effectively

nationalised, it would be inappropriate to single out the contracting sector for nationalisation (see also 9.3.3);

(2) a construction firm's efficiency is determined by the quality of its staff and their collective experience in the organisation. Unless such persons are willing to work for the state the exercise would be counterproductive; the inability of public organisations to obtain sufficient qualified staff makes this even more pertinent (see Chapter 7, especially Fig. 7.2);

(3) the bitter experiences of public-owned bodies in Ghana: governmental interference, legal constraints, financial difficulties and inefficiency bode ill for total nationalisation of construction, or even expansion of existing public concerns[42] (see 7.5.1 and 13.7.1.1.2); and

(4) foreign firms have a role to play in the high technology (international) end of the construction spectrum, not only in the sense that they offer competition to the few large firms, but also because they introduce modern techniques in the industry and thus help it to progress. Ghana's industry has not yet developed the facilities for sustained growth and increasing adaptability (see 3.8; 14.2 and 15.1(4)).

Thus, although proposals will be made for the improvement of the SCC and the direct-labour organisations (see 15.13), the nationalisation of the contracting sector is not considered the best answer to the question of how contractor capacity in Ghana can be increased.

15.9. Cooperatives

A number of formally-organised cooperative firms exist in Ghana's construction industry (see 7.8.3.3). These are mainly in the conventional-medium or small category (see 4.4.2). In the same category, and sometimes working on substantial projects, is a large number of

informal, transient labour-only subcontracting teams, assembled by largely semi-literate 'contractors' for particular projects and disbanded when the work is finished. These 'contractors' are experienced tradesmen. They do most of the work in the private sector.

They benefit from their anonymity, informality and freedom from the procedural constraints of the modern sector of the industry. Few have tried to register as contractors with the public agencies (see 13.3), despite the obviously better prospects in that area (see 6.5.2). It is unlikely that many more would be prepared to make such a move. Attempting to identify and organise them formally might be more destructive than otherwise. So would be any effort to teach them any management techniques. (See 11.12.4 and 13.5.4). It is essential, however, that this category of contractor is recognised, and those wishing to be formally registered given every encouragement and assistance. These are particularly dedicated person on which the future development of the contracting sector could be based, but the right policy at the moment is that of non-interference.

There is also the possibility of organising formally-trained persons into cooperatives. (See also 11.4.2). Ghana's first civilian government adopted such an approach. A Minister observed that if Ghana was to make any headway

> "... it can only be through cooperative and similar bodies, since experience has shown that private Ghanaian businessmen cannot or will not work on a sufficient scale to compete with overseas firms."[43]

Although certain producers' cooperatives were formed all over the country, builders did not formally organise themselves in this way to any large extent.

In the Ghanaian setting, where the contractor needs much lobbying to obtain jobs, to acquire materials and ensure that payments due to him for his work are expedited (see 9.6.7; 9.7.3 and 10.7.1), it is necessary for every contracting organisation to have a person or group

to perform these activities. Thus each cooperative would have to be provided with a management team. Experience shows that independent managers of such units (ie non-members) in Ghana have defrauded them. It is best, therefore, to have members performing these duties. Thus forming cooperatives is likely to be as long and difficult as encouraging individual contracting firms.

The best way in which cooperatives can be used is on serial projects on which materials are provided for them and payments are made directly and expeditiously, as the one that is being utilised in the cooperative housing scheme at Tema. Thus they could be employed on some of the schemes of the State Housing Corporation. Whereas it is possible to suggest that the Department of Cooperatives (see 7.8.3.3) take some of the cooperatives under its wing, it is true that it has little expertise in contracting, and its limited executive capacity would in any case mean that few firms can be supported in this way.

A few more can obtain some technical assistance at the Technology Consultancy Centre (see 11.8.1.4) and the BRRI (see 10.5.1), but these will be limited to units in the municipality of Kumasi. Thus, although cooperatives hold some potential, their effective development is not without its problems and few of them can be assisted in a way that will eventually make them self-sufficient. It is pertinent that these are identified and encouraged in the ways outlined above and later (see 15.13), but the strategy for developing contractors should concentrate on other areas.

15.10. The Capitalist Firm

Ghana has a very large number of capitalist construction firms of a variety of sizes and levels of efficiency (see 13.4.). To achieve the aim of increasing the number of large firms and that of small dedicated firms (see 15.3), several approaches are possible and these

are usually suggested as: mergers (see 5.4.3.3), cooperation between foreign and local firms (see 5.4.4.2), the provision of capital (see 5.4.3.1), and/or training for small contractors (see 5.4.3.4).

Several reasons have been advanced as contributing to the non-popularity of mergers in Ghana (see 13.6.4). These rule out that option.

Cooperation between foreign and local firms is useful but possible only if it is made obligatory in a contract and if joint partnerships are encouraged, as is being done in Ghana (see 13.4.1), rather than limiting it to particular projects. The difficulty lies in ensuring that local counterparts are genuine contractors rather than profit-seeking dormant partners lending their names to the expatriate firm for material rewards. Furthermore, since Ghana's economic situation (see 6.4.6) will rule out widespread involvement of foreign firms, few Ghanaian firms will benefit from this scheme. (See also 5.4.4.5(b) and 14.8.1.2).

Concerning the provision of finance to contractors, the experience of the BHC and other Banks in Ghana show that not much can be gained from merely lending contractors money (see 13.7.2.1-2). Organising training for small contractors is not simple since most of them control almost all aspects of their firms' operations (see 13.6.3) and cannot leave them for long periods at a time. (See 13.9.5). Moreover, most contractors in Ghana do not see the need for training. (See 11.12.4). Thus, comprehensive and imaginative programmes are needed for small contractors. Before discussing such a scheme for Ghana, examples of similar attempts in other African countries are briefly considered. (See also 5.4.4.1).

15.11. Examples of Contractor Development Programmes

In an attempt to promote the emergence and growth of indigenous

contractors some governments in Africa have established schemes, two of which are now discussed.

15.11.1. The National Construction Corporation (NCC) of Kenya

Having been made aware of the inability of African firms to compete effectively with their Asian and expatriate counterparts, the Kenyan government adopted measures to redress the situation. These started with tender preferences and reservation of certain contracts only to African contractors, and culminated in 1968 in the formation of the National Construction Corporation (NCC)[44], which is basically:

(a) a bank

(b) a training centre, and

(c) a construction unit providing support services.

The essential concept of the programme of the NCC is the provision and management of all the contractor's key resources to enable him to acquire experience on projects awarded him.

The governments of Kenya and Norway contributed 1 million shillings each to a revolving fund which is used to prefinance contractors' projects, There are also hire-purchase arrangements to help contractors to acquire small and medium equipment, and a plant pool from which they can hire essential heavy plant and equipment.

The Ministry of Works reserves a quota of its jobs each year to the NCC for award to its contractors, The Corporation maintains an office in each province and its staff run courses such as in estimating, tendering, project planning and also visit the sites of trainee contractors, The Kenyan African Contractors Association is actively involved in NCC,

15.11.1.1. Policy

After initial teething problems and major setbacks the NCC's

present policy includes:

(a) selecting its trainee contractors on objective criteria and limiting the number of trainees and the jobs they have at any time in order to provide an acceptable level of assistance to each: it maintains a ratio of one instructor to between 5 and 7 projects to enable each job to be visited once a week;

(b) keeping trainee contractors continually employed: adopting a training rather than production approach to projects under the programme. Clients had to be prepared to accept a level of substandard or delayed work;

(c) accepting that there will be some financial losses and setting a limit to such losses; instituting sound accounting machineries and, in general, adopting realistic and flexible operating procedures;

(d) finally, categorising contractors into groups which indicate the special services they need, and deciding on the length of the training period and the type of assistance to be provided at each stage.

15.11.1.2. Appraisal

The NCC started with a budget of 170,000 shillings (7.5 shillings = US$1.00) and a staff of 15. By 1979 it was spending over 5 million shillings per annum, employing 175 persons and with 395 contractors on its register, some contractors having already graduated from being under its umbrella.

15.11.1.3. Special Features

The NCC's scheme was initially possible because of and continues to benefit from:

(1) a government committed to the development of local entrepreneurship

and willing to sacrifice quality and speed of construction as well as some financial costs to achieve it;

(2) Norwegian financial and technical assistance, Differences between the organisation of the Kenyan (similar to the British) and Norwegian construction industries, however, made it necessary for orientation courses to be organised for the expatriate staff;

(3) the ability and willingness to recognise errors and review procedures and thus the adoption of a pragmatic, albeit persistent, programme; and

(4) the placing of the NCC under the wing of a high government body - the Ministry of Works - conversant with construction.

15.11.2. The Small Enterprises Development Company (SEDCO) of Swaziland

The Small Enterprises Development Company[45] is a subsidiary of the National Industrial Development Corporation (NIDCS), which is under the Ministry of Industries, Mines and Tourism. SEDCO's Building Section has been assisting contractors since 1972 and its present activities incorporate the provision of:

(a) training and advice;

(b) finance and its management; and

(c) support for contractors in their bidding.

15.11.2,1. Operations

SEDCO has only one branch in the capital Mbabane. Its financial assistance to contractors takes the form of advances to cover invoices for materials and other supplies, monthly wages, including an agreed salary for the proprietor, and any special requirements. Interim payments on the projects are also made directly to SEDCO. This process enables contractors' finances to be managed for them and helps them to

to learn book- and record-keeping. Kenya's NCC (see 15.11.1) uses essentially the same procedure.

SEDCO's contractors are instructed in estimating, accounting and project management at the initial stages of their selection, and at occasional courses. The staff visit construction sites to provide technical and managerial advice to the contractors.

As a matter of policy, SEDCO encourages contractors to look for jobs in both the public and private sectors. It checks all tenders submitted by its contractors, and on government projects, this has led to a waiver of the requirement of Performance Bonds (10 per cent of estimated costs). Some private clients restrict eligible bidders on their projects to SEDCO-supported contractors.

Loans provided by SEDCO are interest-free, although a "ledger fee" of 2½ per cent of contract sum is levied on successful bidders for the financial management services.

15.11.2.2. Assessment

The Building Section of SEDCO is a small unit which has never had more than four members of staff at any time. Its achievements have been modest. None of its contractors has achieved self-dependence although a 1976 policy restricted its period of assistance to three years.

With a revolving fund of 100,000 Emalangeni (0.75 emalangeni ≡ US$1.00), its small staff and highly centralised procedure, it now provides support for about 15 of its 40 contractors, some of whom have grown in size and competence.

15.11.2.3. Special Features

Factors that contributed to the establishment of SEDCO and help to sustain it include:

(a) NIDCS and SEDCO were created with a loan provided by UNDP and obtain technical assistance from the International Labour Office

(ILO): and

(b) SEDCO's creation and its provision of free services to contractors called for a government intent on developing private construction firms with public funds.

15.11.3. Comparison of NCC and SEDCO

The similarity between NCC and SEDCO lies only in their pursuit of the same object: a strong and efficient indigenous contracting sector. There are major differences in their sizes, the scale and scope of their operations, and their relationship with other institutions; each of which is dictated by government policy, human and material resources, and the country's needs and aspirations.

Thus, whereas NCC is a nation-wide organisation providing the whole spectrum of services an emergent contractor would require: training, advice, funds, management, jobs, hire-purchase schemes, materials purchasing arrangements and a plant pool; involving government and the Contractors Association and being under the responsibility of the Ministry of Works, SEDCO is smaller and provides a more limited range of services, having been conceived as part of the attempt to develop local entrepreneurship and operates under the wing of the NIDCS and the Ministry of Industries.

SEDCO, however, is making some impact in the very small country of Swaziland with its modest needs in terms of the number of contractors.

15.11.4. Other Examples

Examples of programmes to develop indigenous contractors which have failed may also be cited[46]:

(1) Botswana's Batswana Enterprises Development Unit (BEDU) approached the task in the same manner as it did other light industrial and commercial enterprises: the provision of working premises in an estate and the giving of loans to prefinance contractor's projects.

The approval of such loans is so often delayed that few construction firms have found it worth their while to remain in BEDU's charge.

(2) Lesotho's Basutho Enterprises Development Company (BEDCO)'s attempts at contractor development resulted in a sort of direct labour organisation, the firms being used on the construction of BEDCO's own estates and other projects.

15.12. A Scheme for Ghana

Having studied attempts in various African countries to develop indigenous contractors, the implications of these approaches in the context of the Ghanaian situation are now considered, and an outline of a similar scheme that could be introduced in the country essayed. The latter is only a series of broad proposals for further discussion (see 15.12.5).

15.12.1. Lessons

The experiences of various countries which attempted to encourage contractors imply that success is most likely if[47]:

(a) policies are related to needs, reviewed in the light of events, and pursued with persistent endeavour;

(b) the peculiar nature of construction activity is recognised and the right mix of services provided;

(c) the administering body is given a measure of independence but placed under a Ministry most qualified to deal with it;

(d) the number of contractors under the programme is limited to that which allows assistance to be intensive and effective.

There also arise difficulties which every such scheme will have to tackle. These include "featherbedding" and the issue of selection.

15.12.2. Featherbedding

There is the danger that assisting contractors will blunt their entrepreneurial capacities (see 15.6.1-6) and lead to complacency and inefficiency. Policies, therefore, need to strike a balance between the reliance on market forces, which means only the most efficient firms will survive, and excessive support for local firms. Decisions in this sphere need to be based on the time-scale for the programme and the attitude of the local entrepreneur.

The latter differs from one country to the other. SEDCO's contractors, for example, tended to consider themselves as employees of the Building Section and some were apt to delay projects to keep themselves and others in jobs. In particular, tendering for projects on behalf of the contractor, as the NCC does (see 15.11.1), is potentially counter-productive, especially if the intention is to encourage the evolution of self-sufficient, risk-bearing contractors (see 15.3).

The issue resolves itself into how much risk the contractors under the scheme are allowed to bear, for their own present benefit and future development, and for the successful completion of the programme.

In the context of the Ghanaian situation this would best be approached through a careful and systematic categorisation of contractors, various kinds of support services being limited only to those most needful and/or in the best position to benefit from it.

15.12.3. Selection

The need to limit the number of contractors under the scheme at any time will, in the case of Ghana, call for a selection of most suitable candidates from the large number of registered contractors (see 13.4). It is, therefore, necessary to build into the scheme:

(a) a measure of dynamism which enables firms to enter, to progress within and graduate from the programme; and

(b) criteria for determining entry, promotion and graduation.

These would necessitate not only a decision on the cut-off points in time within the programme but also the qualities of the firm that could be assessed, and a consideration of what to do about contractors who remain at the same level over too long a time (see 15.11.2.2).

15.12.4. Infrastructure

The nature of the contractor development scheme should be based on existing institutional frameworks that are most suited to its success (see 15.1).

In Ghana it would be based on the present schemes of the Bank for Housing and Construction (BHC) (see 13.7.2.1.1-8) and the programmes of CEBCA that are yet to reach fruition (see 13,8.4). The Social Security Bank's (SSB) (see 13.7.2.2) scheme would also be utilised as would the services of commercial concerns such as banks, plant-hire firms (see 12.6.2) and materials suppliers (see 10.7.2), government's tendering system (see 9.6 and 14.9.4) and the contractors within the scheme themselves. Also to be utilised would be the MDPI's Ghanaian Business Bureau (see 11.7.2) and the country's experiences in entrepreneurial development in general (see footnote 8, Chapter 13; 13.7.1-3 and 15.8).

15.12.5. Working Party

A committee should be established to formulate the details of the scheme; its members should be drawn from: CEBCA, BHC, SSB, the Ghanaian Business Promotions Office, and the Ministries of Works, Finance and Industries (see Chapter 7). Arrangements should be made to enable the party or some of its members to visit Kenya's NCC and/or obtain documents on the NCC, SEDCO and similar bodies in other developing countries.

15.12.6. Organisation

The scheme would be administered by a body, the Ghana Contractor Development Corporation (GCDC), directly under the Ministry of Works and Housing. It would use the BHC's Engineering Services Department as a nucleus.

Under a 3-year development programme, it would have four branches in:

(1) Accra for Greater Accra, Eastern and Volta Regions;

(2) Takoradi for Central and Western Regions;

(3) Kumasi for Ashanti and Brong-Ahafo; and

(4) Tamale for Northern and Upper Regions.

15.12.7. Finance

The GCDC should be a self-supporting, fee-charging organisation, its initial capital to be provided by government drawn, say, from its shares in the BHC; and CEBCA. Each branch would be relatively autonomous, with its own revolving fund and the power to accept and approve applications for any assistance it can provide.

15.12.8. Staffing

The Corporation would be governed by a Board of Directors, appointed by government, with representatives of CEBCA and, preferably, including some experienced construction professionals.

Each branch office would be headed by a Regional Manager and would have at least:

2 Building Technologists (Management)

2 Quantity Surveyors

1 Civil Engineer

1 Land Surveyor

Some supporting Technicians

1 Accountant and

Some Administrative staff.

The head office in Accra would have a greater number of each category of personnel since most firms are based in Accra (see 13.4).

15.12.9. Categorisation

Contractors would be divided into three major classes, and each class would then be divided into categories, depending upon the qualification of the proprietor or the personnel he can and does employ. Having categorised the firms, it is then possible to identify the services each type of firm would require and the duration of the stages of such assistance. Contracting firms in Ghana could be categorised as follows.

15.12.9.1, Class I

This would correspond roughly with the existing government Class I (see 13.3 and 15.13.1.3). The need here is to increase the efficiency and technical sophistication of firms. Hire-purchase facilities for the acquisition of heavy plant should be provided to all firms in this group.

Firms owned by or employing qualified graduates or sub-professionals (QI) need to be assisted with finance. Such firms would operate on a national basis and can benefit from the services of SSB. Financial aid for this category of contractor should not be provided from the GCDC's revolving fund.

The other category of firm in this class would be owned by well-to-do entrepreneurs with little technical knowledge (see 13.2) and, in many cases, not employing adequately qualified persons (NQI) (see 13.6.3). Such contractors should be provided with some of GCDC's professional personnel from the Head Office on secondment basis on major projects and arrangements made to train an understudy within the firm. The firm should pay at least half of the professional's salary within the period

as a fee. Such firms could also be provided with estimating and other consultancy services by branches of GCDC at a fee.

15.12.9.2. Class II

This class would include some of the existing Class II and III (see 13.3. and 15.13.1.3). Strategies for this group should aim at increasing capability of contractors and expediting their upgrading to Class I (see 15.3). They should be given priority in the hiring of plant at the Corporation's plant pools. The hire-purchase facilities provided them should be for the purchase of vehicles and medium or light equipment.

Firms owned by or employing graduates and subprofessionals in construction (Q2) should be given financial assistance from GCDC's revolving fund.

Other firms (NQ2) would be given financial assistance and assistance with their estimating, tendering and project management, each service being more intensive and free in the initial stages, and progressively reduced and charged for. Monthly one- or two-day courses on most essential subjects could be arranged for contractors or their supervisors. In addition, the staff of the branch offices would pay at least fortnightly visits to contractors' sites to advise and guide them.

15.12.9.3. Class III

Firms in this group would be given the full complement of services provided for NQ2 (see 15.12.9.2) and in addition would be assisted to obtain jobs either as general contractors or subcontractors with firms in Class I and the SCC (see 13.7.1.1).

15.12.10. Selection

There are only a few firms in Class I, and it is unlikely

that all of these would want to associate themselves with the Corporation. In addition, since they should be made to obtain their financial assistance from outside the revolving fund, the problem of selecting those to be aided is not serious. Hire-purchase arrangements should be financed by the commercial banks, especially the Ghana Commercial Bank and SSB, with the GCDC acting as guarantor.

In Class II, although any number of firms may register with the Corporation, only those that are able to obtain jobs should be given active assistance. Where such firms are more than the local branch can effectively handle, priority should be given to firms with qualified proprietors or personnel for two reasons:

(a) this would reduce the strain on the Corporation's staff; and

(b) such firms have greater promise of expansion and, hence, promotion. to Class I, which is the main aim of the strategy for this category of firm. (See 15.3.).

The Class III firms would be the most numerous (see 13.4) and supporting each of them would place much more demands on the Corporation's resources than other types of contractors (see 15.12.9,3). Their selection would be based on issues such as those stated above for Class II firms as well as the dedication of the entrepreneur and prospects for the effective advancement of the firm. Initially, experience would be a vital consideration although, once again, any firm could register.

It is clear that at each point in time and within each category some firms would be competing on their own against others assisted by the GCDC. Whereas this could be termed unfair, there seems little alternative if any effective headway is to be made (see 15.12.1). The introduction of cut-off points within the scheme will ensure that other contractors have a chance to benefit from this preferential treatment, and will also encourage those under the scheme to strive to gain the maximum benefits from it within the time (see also 15,12.3).

15.12.11. The Revolving Fund

The Regional Manager of each branch office would have the entrepreneurial responsibility for the administration of the revolving fund. The size of the fund in each region should be dependent upon:

(a) number of contractors under the scheme at any time;

(b) percentage of project costs that is to be considered a maximum level of prefinancing loans;

(c) acceptable levels of bad debts and delayed repayments (see 15.11.1.1);

Financial assistance under the revolving fund would not be in the form of loans but rather advances to cover contractors' expenditure on presentation of relevant evidence. The geographical distribution of the branches should reduce the transport costs and inconvenience to contractors under such a scheme. Monthly payrolls should include a negotiated realistic 'salary' for the proprietor(s) of the firm.

15.12.12. Interests and Fees

Prefinancing assistance under the revolving fund should be interest-free, although a fee of not more than 3 per cent of the estimated cost of a successful bid may be charged for the financial management service. For Class I and Class II firms, consultancy services would be at the prevailing commercial rates, but site visits and occasional advice and training would be free.

In the first year of their association with the GCDC, consultancy services for Class III contractors would be free, rising to a half of the commercial rate in the second year and the full rate in the third year.

The possibility of government subsidising the interest rate on hire-purchase facilities, provided especially to Classes II and III contractors, should be considered.

15.13. Programme for Contractors

A programme for improving the effectiveness and efficiency of Ghana's contractors is now formulated. It is based on the strategy outlined in 15.3 and attempts to improve the quality of the entrepreneur-contractors, the internal attributes of his firm (see 15.4.1-2) and parts of the environment in which he operates. (See 15.4.3-4. Detailed proposals for improving contractors' environment are made in Chapter 14.)

15.13.1. Short Term

1. SCC: It is of particular importance that the objectives of the SCC are clarified. If it is to be used to its full potential then it should be allowed to operate on a commercial basis. It should be left to decide, for example, which jobs to undertake or how many people to employ, or the level of its wages and salaries.

It is also necessary that plans are initiated at this stage to develop the Corporation into a technically-sophisticated, first-class construction organisation, executing projects only in the international and conventional large category. Guidelines for such plans include: how plant is to be acquired for the SCC, how employment in it can be made attractive to qualified Ghanaians, and placing a floor limit (say 750,000 cedis) on its projects. The MDPI and the BRRI could be charged with devising the plan.

2. PWD: The PWD has a valuable network of district offices; it can thus be used to execute small projects all over the country. It could be assigned the more social aspects of the SCC's operations. It is essential to take measures to halt the rapid decline and loss of status of the Department. While remaining in the civil service, it can be made more useful than it is at present if provided with materials and vital equipment.

3. Registration: The registration of contractors is useful in many ways: at the very least it provides a basis for formal entry into the field. Whereas the process should be continued, there is the need for some rationalisation.

The ranges of contract values for classifying contractors have been overtaken by inflation and need to be revised. It would be best to create three classes of contractors:

Class I - Over ¢1½ million

Class II - ¢500,000 - 1,500,000

Class III - Up to ¢500,000.

Generally, the new Class III would embrace the present Classes III and IV. The new Class II would be mainly the present Class II with a few of the better Class III firms, and the new Class I would be hardly different from the present.

To maintain greater control, the registration of contractors should be performed annually at specific periods of the year, say, in July-August, when the workload of the public agencies is lightest (at the end of one and beginning of the next financial years).

Each contractor would be required to re-register every two years: in this way their assets can be checked. Furthermore, an idea of contractors' possession of such assets can be obtained if indications of types and numbers of labour and plant on each project were made in progress reports accompanying interim payment certificates.

4. Contractors: Much will depend at this stage on what contractors and their assocation are willing and able to do to help themselves. For example, contractors could:

(a) avoid taking on too many projects at a time;

(b) employ qualified persons, even if on a part-time basis, to seek their financial interests and supervise their projects;

(c) endeavour to rehabilitate their public image through better quality

of work and fulfilment of their obligations; and

(d) support their association morally and materially to make it more able to help them.

The CEBCA should organise short talks through MDPI on some of the above issues as well as on management styles and corporate behaviour for its members, (See also 14.6.2.3),

As the difficulties in the field persist, only the dedicated and/or more efficient firms will remain. Measures should be taken by the public agencies to revise their lists of contractors at this stage and to find ways of preventing another flood of small contractors emerging when public sector demand rises. (See 15.13,1.3).

5. Expatriate Contractors have a role to play in the technological development of the industry. Government should maintain its policy of encouraging joint Ghanaian-foreign enterprises, but it should take steps to ensure that Ghanaian counterparts are in a position to benefit from such ventures, Thus only established Class I and II firms should be permitted to enter such agreements.

6. At this stage, the contractor development scheme (see 15.12) will be launched: the working party on it will meet to draw up its details. Branch offices of GCDC should be opened as soon as the scheme is finalised.

7. CEBCA should be enabled to participate fully in the contractor development scheme and in the formulation of policies and programmes for construction, The Association should integrate some of its own plans such as establishing a bank or employing a pool of consultants with the activities of GCDC,

Whereas contractors should still be free to decide whether to join CEBCA or not, the Association should demonstrate that it would be

worthwhile for all firms to join it. It should concentrate at this stage on attempts to improve the image of the local contractor. This can best be done by enforcing discipline and maintaining adequate standards of work.

8. The success of some of the short-term measures to relieve shortages of materials, plant and skilled manpower, and generally improve the environment of the construction industry (see Chapter 14) would contribute towards enhancing contractors' efficiency.

15.13.2. Medium Term

1. The Contractor Development Corporation would be fully operational at this stage.

2. At this stage the programme for developing the SCC should be implemented. It is possible to groom it into an organisation capable of undertaking contracts in neighbouring countries.

3. If demand for international and large projects falls then Class I Ghanaian firms including the SCC should be encouraged to develop an export strategy: to take contracts in other African countries. This could be a way of meeting Nigeria's needs for expertise: Ghanaians could be organised as firms (consulting and contracting) to go there, rather than as individuals (see also 14.6.1.11).

4. Cooperatives: Existing local builders cooperatives should be actively encouraged. Furthermore, where groups of trained tradesmen wish to form cooperative groups, they should be provided with support services, especially financial management and in their administrative duties through the GCDC, BRRI and MDPI, but the overall coordination

of the programme for cooperatives should remain with the Department of Cooperatives.

Informally organised contracting organisations and the self-employed tradesmen cater for the needs of the private sector client. Attempts to make them register as contractors, or otherwise bring them into the mainstream of the formal sector of the industry or to teach them any management principles, will at best lead to confusion and, at worst, the destruction of such a useful though difficult to identify part of the industry. Movement from this field into the formal sector should result from voluntary decisions taken by the individuals or groups concerned.

5. The prequalification criteria for registering contractors should be revised at this stage. This task should be entrusted to a committee composed of representatives of the PWD, AESC and GHA and the GCDC. Issues to be considered include how qualifications and/or experience of applicants could be made to compensate for physical capital assets; the possibility of the contractor hiring plant or employing persons part-time; and measures to prevent the abuse of the registration process.

6. The inclusion of non-academic factors in educational and training syllabi at all elevels) (see 14.6.1.9) will engender the emergence of persons more inclined towards contracting. Measures should be taken to facilitate the entry of such persons into the field (see 15.13.2.5).

15.13.3. Long Term

1. In the long term, some first-class Ghanaian firms should be able to undertake projects in other parts of the African continent. Some developing countries such as South Korea have firms effectively competing in the lucrative Middle-East construction market and in some African countries. Some Ghanaian firms have won contracts in the new Zimbabwe.

This should be the beginning of bigger things in that sphere.

2. As in many other things, Ghana could give a lead to other African countries in contractor development. In the long term, the larger Ghanaian firms should be encouraged to team up with indigenous firms in other African countries as a way of training the latter. This could be incorporated in the ILO's contractor development programme for Africa.

3. Government should gradually pass control of the GCDC to the Contractors Association. It is important that the association develop its own technical expertise to match its political awareness and vocal leadership. Submissions to government on matters affecting contractors should consist of wide-ranging, professionally sound arguments in memoranda rather than verbal statements and newspaper articles dwelling on the more obvious issues such as shortages of materials or delays in honouring payment certificates. Thus the Executive Secretary and/or two of his assistants should be qualified and experienced in construction management and economics.

15.14. Summary

A summary of the programme for contractors is presented below in tabular form.

CONTRACTOR DEVELOPMENT

Short Term	Medium Term	Long Term
1. Clarify SCC's corporate objectives and commission study into developing its technical sophistication.	1. Implement the programme for the SCC.	1. First-class Ghanaian firms to undertake projects in other African countries
2. Endeavour to halt the decline of the PWD and attempt to utilise its present strengths.	2. Contractors' environment will be improved by this stage by the success of short- and medium-term measures for materials, manpower, procedures, planning, technology and the government's role.	2. Larger Ghanaian firms to be used to train indigenous firms in other African countries
3. Revise registration procedure.	3. Revise prequalification criteria for registering contractors.	3. Control of the GCDC to be gradually passed to CEBCA. CEBCA to develop technical expertise.
4. Educate contractors on how they can help themselves.	4. Identify and promote cooperatives.	
5. Continue to encourage joint ventures between foreign firms and Classes I and II Ghanaian firms.	5. Encourage some Class I Ghanaian firms to develop export strategies.	
6. Establish the working party on the contractor development scheme.	6. Launch the Contractor Development Corporation.	

15.15. Notes and References

1. Kast, F.E. and Rosenzweig, J.E., Systems Concepts: Pervasiveness and Potential, in Carrol, S.J. et al (eds), The Management Process: Cases and Readings, Collier-Macmillan, London, 1973, p. 69.

2. Pfiffner, J.N, and Sherwood, F.P., Administrative Organisations, Prentice-Hall, Englewood Cliffs, 1960, p. 207.

3. Angyal, A., Foundations for a Science of Personality, Commonwealth Fund, New York, 1941, p. 100.

4. The International Labour Organisation, The Enterprise and Factors Affecting its Operations, ILO, Geneva, 1965, p. 12.

   Eels (1962) emphasised that a firm spreads from an inner management group, which is closely involved, to groups on its borders such as creditors, customers, suppliers, agents, trade unions, local communities. In some cases the outlying groups have so much influence over aspects of the firm's control that it is difficult to delineate the enterprise. - Eels, R., The Government of Corporations, Free Press, 1962, Chapter 5.

   Both Barnard (1938) and Simon (1945) considered customers an integral part of the system of the organisation. - Barnard, C., The Functions of the Executive, Harvard, 1938, p. 77; Simon, H.A., Administrative Behaviour, Macmillan, New York, 1945.

   The construction firm is even more susceptible to external control (see 3.6.4-6 and 15.2), and difficult to delineate. In this thesis, however, the formal management system is singled out for detailed treatment, with the intention of making it more able to deal with the informal system, groups and individuals on its periphery, and its wider environment.

5. Galbraith argues that with the emergence of the organisation required by modern technology and planning and the divorce of the owner of the capital from the control of the enterprise, the entrepreneur no longer exists as an individual person in the mature industrial enterprise but "He is still, of course, to be found in smaller firms and in larger ones that have yet to reach full maturity of organisation." - Galbraith, J.K., The New Industrial State, Second Edition, Penguin Books, London, 1972, p. 85.

6. See Hoselitz, B.F., The Early History of Entrepreneurial Theory, Explorations in Entrepreneurial History, 3, April 1951, pp. 193ff; Cole, A.H., An Approach to the Study of Entrepreneurship, Journal of Economic History, 6, supplement, 1946, pp. 1-15, refers to Cantillon, R., Essai sur la Commerce,1755; Say, J.B., A Treatise on Political Economy, London, 1821, and Cathechism of Political Economy, London, 1816.

7. Weber, M., The Protestant Ethic and the Spirit of Capitalism, 1904 (Trans. Parsons, T., Scribner's Sons, New York, 1930).

8. See Sombart, W., The Quintessence of Capitalism (Trans. Epstein, M., Dutton, New York, 1915); Robertson, H.M., A Criticism of Max Weber and His School in his Aspects of the Rise of Economic Individualism, Cambridge University Press, Cambridge, 1933; Green, R.W. (ed), Protestantism and Capitalism: The Weberthesis and its Critics, Health and Co., Boston, 1959.

9. Papanek, G., The Development of Entrepreneurship, American Economic Review, 52, May 1962, pp. 46-58.

10. Carroll, J.J., The Filipino Manufacturing Entrepreneur, Cornell University Press, Ithaca, New York, 1965.

11. Schumpeter, J.A., The Theory of Economic Development, 1934 (Trans. Opie, R., Harvard University Press, 1949).

12. Penrose, E.T., The Theory of the Growth of the Firm, Basil Blackwell, Oxford, 1959.

13. Ibid., pp. 45-46.

14. Ibid., p. 43.

15. Hirschman, A.O., The Strategy of Economic Development, Yale University Press, New Haven, 1958.

16. Singer, H.W., International Development: Growth and Change, 1964.

17. See Hirschmeier, J., The Origins of Entrepreneurship in Meiji Japan, Harvard University Press, Cambridge, 1964; Papanek, G., op. cit. (ref. 9); and Carroll, J.J., op. cit. (ref. 10).

18. Schatz, S.P., Development Bank Lending in Nigeria: The Federal Loans Board, Oxford University Press, Ibadan, 1964; Aiding Nigerian Business: The Yaba Industrial Estate, Nigerian Journal of Economic and Social Studies, 6, No. 2, July 1964, pp. 199-217; and The Capital Shortage Illusion: Government Lending in Nigeria, Oxford Economic Papers, 17, No. 2, July 1965, pp. 309-316.

19. Kilby, P., African Enterprise: The Nigerian Industry, Noord-Hollandsche Uitg. Mij., Amsterdam, 1966.

20. Ibid., p. 338.

21. Harris, J.R., Industrial Entrepreneurship in Nigeria, unpublished Ph.D., dissertation, North Western University, August 1967; and Nigerian Enterprise in the Printing Industry, Nigerian Journal of Economic and Social Studies, 10, No. 2, July 1968.

22. Parson, T., et al (eds), Towards a General Theory of Action, Harvard University Press, Cambridge, 1951.

23. Papanek, G., op. cit. (ref. 5), p. 5.

24. As outlined in Akeredolu-Ale, E.O., The Underdevelopment of Indigenous Entrepreneurship in Nigeria, Ibadan University Press, 1975, pp. 15-16.

25. Drucker, P., Technology, Management and Society, Pan, London, 1970, p. 36.

26. McClelland, D.C., That Urge to Achieve, Think 32, 6 (Nov.-Dec. 1966), p. 19.

27. McClelland, D.C., The Achieving Society, Van Nostrand, New York, 1961, p. 345.

28. Ibid., p. 356.

29. McClelland, op. cit. (ref. 26), p. 28.

30. Ibid., p. 32.

31. Hagen, E.E., On the Theory of Social Change, Dorsey Press, Homewood, Illinois, 1962, p. 55.

32. Ibid., p. 237.

33. Akeredolu-Ale, op. cit (ref. 24), p. 21.

34. See, for example, McGuire, J.W., Knowledge: The Basic Business Commodity, Business Horizons, 12 June 1969, pp. 31-38, reprinted in Carroll, S.J. Jnr., et al, op. cit. (ref. 1), pp. 119ff.

35. Ibid., pp. 120-121.

36. Kendrick, J.W., Productivity Trends in the United States, Princeton University Press, Princeton, 1951, p. 79.

37. Anderson, C.A., Literacy and Schooling on the Development Threshold: Some Historical Cases, in Anderson, C.A. and Bowman, M.J. (eds), Education and Economic Development, Aldine Publishing Co., Chicago, 1963, p. 347.

38. Carroll, J.J., op. cit. (ref. 10).

39. Papanek, G., op. cit. (ref. 9), p. 56.

40. Davidson, B., Which Way Africa? The Search for a New Society, 3rd Ed., Penguin, 1971, p. 117.

41. "Ghana's problem lay not so much in lack of capital as in the absence of suitable outlets for it and lack of self-confidence amongst local businessmen to enlarge and diversify their activities." - Jones, T., Ghana's First Republic 1960-66, Methuen, London, 1966.

42. For further discussion of the experiences of state-owned enterprises in Ghana see Gaba, S.Y., Problems Relating to Management and Control of Public Corporations in Ghana, in Greenhill Journal of Administration, Vol. 1, No. 2, July-September 1974, pp. 100-117.

43. A statement by Mr. K. Botsio, Minister in the first post-independence government. Quoted in Davidson, B., op. cit. (ref. 40), p. 117.

44. This section is based on the ILO's unpublished draft teaching document: National Construction Corporation of Kenya: an approach to the development of an indigenous construction industry. Prepared by the Management Development Branch (Geneva, 1979) for its construction management training programme.

45. Based on the ILO's unpublished draft teaching document: Small Enterprise Development Company (SEDCO): an approach to developing the local construction industry (Geneva, 1979). This paper was updated and reviewed by the present author after a visit to Swaziland in August, 1979.

46. The present author was involved in the ILO's management training programme for Africa for various periods in 1978 and 1979. The summary of BEDU's and BEDCO's activities are based on the knowledge acquired during that association.

47. See also Neck, P.A. (ed), Small Enterprise Development: Policies and Programmes, ILO, Geneva, 1977.

PART FIVE

LESSONS FOR THE FUTURE

CHAPTER 16

GENERAL CONCLUSIONS

> "There is a real danger ... that scrutiny of past development experiences will turn up all manner of 'roads not to be taken' and will constrict and paralyse policy makers anxious to learn from other countries' mistakes ... It is much to be hoped that the lessons from past development experiences will not be allowed to turn into a new and tougher generation of obstacles."
>
> - Hirschman, A.O., Preface to: A Rothko Chapel Colloquium, Toward a New Strategy for Development, Pergamon Press, New York, 1979, p. xviii.

> "Country-specific sub-models would evolve, in attempting to realise the new framework. But broad objectives and means of achieving them are necessary if country-specific transitional pathways are to be relevant and operationally valid."
>
> - Wignaraja, P., A Creative Conflict (on a new strategy of development) in Development Forum, June-July 1979, Vol. VII, No. 5, p. 4.

16.1. General Lessons

The non-homogeneity that has characterised the evolution of paradigms on socio-economic development (see 2.6) has been lacking in that of ideas on the construction industries of developing countries (see 5.5). Most writers on the latter subject agree on the basic features of the industries and on the need for the possibility of, and basic strategies for, their improvement and expansion (see 5.6).

The points raised in various parts of this thesis, consolidated by the experience of Ghana over three decades, show that some of these ideas need to be discarded or revised.

16.1.1. Intractability of Construction Problems

Because of the nature of construction activity, the industry

faces problems in every country (see 3.7). Whereas these problems are usually more severe in developing than in developed countries, and it is desirable to formulate measures to alleviate them as existing studies of the issue suggest (see Chapter 5), it is unwise to suppose that their removal is a condition for future progress in the industry. Since it is a real-life activity, some of construction's aspects are related to the historical, socio-cultural and political factors of a society. The problems can, therefore, while remaining obvious and seemingly superficial, be deep-seated, complicated and also variable with time.

Thus, whereas a problem-free construction industry should remain an ideal, it is best to shape tactics in such a way that, while attacking and attempting to alleviate the easier problems, the existence of the more difficult ones are recognised and best ways of getting around them sought, at least in the short and medium term.

16.1.2. Existence of an Infra-Structure

Suggestions for improving the construction industries of developing countries, such as those on a Ministry for construction or those on the choice of technology (see Chapter 5), are usually made as if the countries were starting with a 'clean slate'. Although it might be wrong to generalise, it is safe to say that at least some of the developing countries have made some headway towards implementing some of the measures usually suggested by the writers, with varying degrees of success (see 8.5.7). The need, therefore, is for ideas that build on present achievements, or attempt to utilise failures in the best possible way, rather than those that echo past suggestions or suggest radically new units, systems and regulations - such as the use of computers (see 5.4.3.3).

16.1.3. Absence of a Blueprint

Considering 16.1.1 and 16.1.2, it becomes clear that there can

be no single blueprint for improving the construction industries of the developing countries. Although this was said by some of the authors (see 5.3.1.5, 5.3.2 and 5.4.3.3), the similarity between existing approaches to the issue does not give the impression that there can be alternatives. (See 5.6). The need for country-specificity is valid for overall strategies as well as for detailed tactics. Not only do the different countries have dissimilar backgrounds, resource endowments and institutional infrastructure (see 1.3.8) but also their perceptions of the same problem might be different. For example, at a sub-regional workshop on contractor development for six West African countries, two countries reported that they had too many small local contractors, and while one of these countries considered this a problem, the other thought it welcome. Among the other four countries, one had only two local road contractors and was sceptical about encouraging mergers amongst small contractors because of bad experiences with conglomerates. In yet another country, contracting on public projects was a new phenomenon, all such projects having been executed by direct labour until a year back. Programmes for developing efficient local contractors should, therefore, be different in detail in each of these countries.

16.1.4. Need for a Comprehensive Approach

Considering the nature of construction, and indeed the economy, in developing countries, it is unfortunate that few writers make not more than passing references to the 'traditional' sector (see 4.1). For a long time to come, in many developing countries private sector demand will be met by systems other than the 'modern' sector: by self-employed tradesmen, called 'tacherons' in French West Africa and various names in other places, and traditional builders or by self-help and subsistence building (see 4.4). It is difficult to see how books and articles on 'Construction Industries of Developing Countries' can neglect such a large part of the industries and do justice to the

subject.

Where suggestions are made, it is important that sectors of the industry to which they apply are identified. Not all of these are relevant or safe to apply to all parts of the industry, and mistakes can be made by diligently implementing seemingly logical measures in an unsuitable area. For example, attempting to formalise and/or train the self-employed tradesmen is bound to drive them 'underground' or out of business.

16.1.5. Construction in the Development Process

It is true, as most writers on the issue assert (see 5.4.1, 5.4.3.1 and 5.4.3.5a), that construction plays an important role in the economies of all nations. But, while avoiding detailed arguments about statistics on construction, it is debatable whether it is necessary (it will certainly be difficult) for the industry to have as much share of the economy in the developing countries as it does in developed ones. Experience has shown unilineal approaches to development and issues related to it to be inappropriate (see 1.4.2). Similar approaches to the problem of improving construction should be revised.

In developing countries, where resources are scarce, improving construction does not imply or necessitate increased output. The efficient use of resources is more important.

In every country, the profile and size of demand for construction is determined by clients, and reflects government's development strategy which, in turn, depends upon its perception of what is good for the country. Governments have been concerned with managing the whole economy. (See 1.3.6, 3.6.2 and 6.6). Thus it is unlikely that demand for construction will be stable anywhere in the face of economic difficulties: it is unrealistic to admonish or expect governments to give priority to construction under such circumstances. (See also 5.3.5).

It is better for construction industries to anticipate and react to changes in demand (as indeed in other aspects of their environment).

16.1.6. Dynamism

Despite the impression given by current approaches to the issue (see Chapter 5), improving construction is hardly a once-and-for-all phenomenon: new problems arise as others are solved. For example, progress in the industry could lead to the proliferation of bodies involved in its various aspects, raising problems of integration and coordination (see 7.3.1.4-8). Again, the development of a new local construction material might call for training or retraining of skilled persons, and for new units to produce its tools and equipment (see 10.6). With such linkages among issues of construction, strategies for its improvement need to be dynamic, the later stages anticipating and utilising, or attempting to alleviate the effect of, successes in earlier stages; and at any one time, each tactic drawing upon the success or failure of others in areas linked most directly to it (see 14.3-5).

16.1.7. Priority and Time Scale

In view of the difficulty of solving problems related to construction, and because resources are often limited (for example, even where finance is not a problem, the scarcity of teachers, say, would hamper a manpower development programme), it is unlikely that the developing countries can successfully implement all-out, balanced programmes for the construction industry. (See also 5.4.3.5). Under such circumstances the best approach is to arrange strategies in an order of priority, giving higher ranking to the issues that are easiest to implement, in terms of time and need for resources, or whose successful implementation would, in the context of the particular country, lead to success in most other areas of the industry. (See

14.3-5).

In selecting particular tactics and ranking them, the emphasis should be on the possible and feasible: 'what can be done' rather than the ideal or desirable 'what should be done'. (See also 5.5).

Finally, detailed tactics should be ordered on a time scale, the short, medium and long term, the length of each period and the measures introduced within it would be dictated by the peculiar conditions in each country.

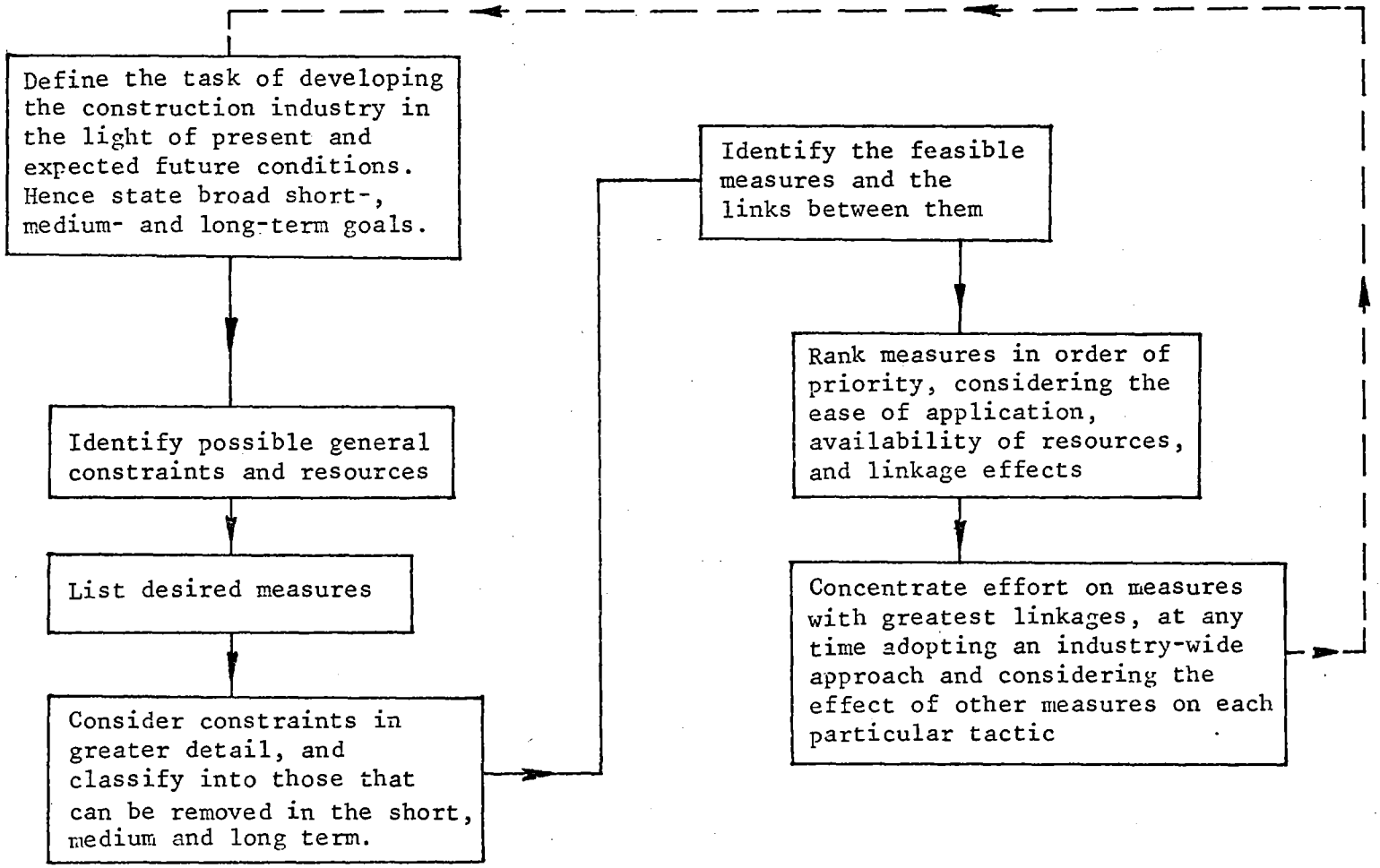
16.1.8. Application to Ghana

These ideas were utilised in formulating the programme for improving Ghana's construction industry (see Chapters 14 and 15). While they indicate that there are no easy solutions to the problems involved in the industry, they also identify ways of approaching the issues. The ideas are summarised in Fig. 16.1. Generally, what is needed in several instances is a change of emphasis or alterations in existing details rather than new institutions or procedures. The complexity and variability of the problem call for pragmatic and flexible approaches.

16.2. Lessons from Ghana's Experience

From Ghana's experience in construction over the past three decades (see Chapters 6-13) a few lessons may be learned. Whereas there is no intention here to generalise examples in one country for others or to formulate a package for application in all countries, it is useful to obtain a simple outline which might be expedient whenever any of the broad issues are considered. (The following points are summarised from the 'conclusions' of Chapters 6 to 13.)

Fig. 16.1. A Diagrammatic Representation of the Method used to Study Ghana's Construction Industry



16.2.1. Construction and the Economy

The level of output in construction (see Chapter 6) in any country depends upon factors including:

* volume of demand
* availability of inputs
* the capacity of the industry, and
* natural phenomena.

Thus, although developing countries are often advised to pursue economic growth to support expanding construction programmes (see 5.3.1.1 and tactic (i), 5.6) and to increase the proportion of construction output in the national economy (see 5.4.3.1) and though the capacity of a country's construction industry is often measured by the level of output, it should be remembered that:

(1) increasing the proportion of output of construction in the national economy involves more issues than merely increasing or maintaining the level of demand. Where inputs are imported, foreign exchange can be a severe constraint;

(2) economic growth does not necessarily lead to or create conditions for increased output in construction; and

(3) the level of output might bear little relation to the capacity of the industry and is not a trustworthy indicator of the success or failure of specific measures for improving construction. Thus, programmes for the industry are best evaluated in terms of how far detailed objectives were met rather than whether they led to increases in output or not.

16.2.2. Government and Construction

The construction industry is so wide that it is not possible to place all of its aspects under one government ministry (see Chapter 7). Therefore, whereas, as often suggested (see 5.3.1.1, 5.4.3.1 and

tactic (2), 5.6), creating a ministry or high-level government department to manage construction is important, whether the ministry is already established or about to be created (it was pointed out in 16.1.2 that the former is more likely in most developing countries), the following points need consideration:

(1) creating a Ministry is relatively easier than staffing it, and resolving the classical differences and conflicts between administrative and professional staff, as well as those between staff and politician-Ministers. Formulating measures aimed at attracting qualified professional staff into the public service and ensuring internal cooperation at the decision-making and operational levels are also important;

(2) since several aspects of construction and matters of indirect consequence to it will, necessarily, be administered by other ministries and departments, the status of the 'Ministry for Construction' in the community of organisations needs particular attention;

(3) the ministry for construction will need smaller bodies to help it in its duties. The relationships between these bodies as well as their ability to perform their tasks and their links with industry and the ministry should also be considered; and

(4) the existence of a ministry for the purpose does not make the task of formulating and implementing policies for construction any easier.

16.2.3. Planning

Planning the volume of construction and the resources required is often considered a vital aspect of attempts to improve the construction industries of developing countries. (See 5.4.3.2 and tactic (3), 5.6). However, planning is not an end in itself. (See Chapter 8). In addition to plans there should be:

(1) the will amongst politicians and other officials to follow them.

(2) the existence of a machinery to effectively implement and control particular measures; and

(3) the availability of disciplined, qualified and experienced personnel to implement the plans.

16.2.4. Procedures

Descriptions of the construction industries of developing countries portray them as being impeded by inappropriate legal, administrative and technical regulations, codes and procedures (see 3.7 and Chapter 5). However, such regulations and procedures are not as restrictive as usually supposed since they affect only the formal sector of the industry, or are usually ignored (see Chapter 9). Therefore, whereas admonitions to developing countries to revise their regulations and procedures pertaining to construction are very common (see Chapter 5 and tactic (4), 5.6), it should be noted that:

(1) it is not easy to effectively change procedures, most of which
   (a) date far back into the past;
   (b) are the basis for the training of existing skilled personnel;
   (c) are complex; or
   (d) are linked to the culture and traditions of the various peoples of the country;

(2) changing specific procedures would necessitate broader alterations in several areas, and call for the cooperation of a variety of persons and institutions. It would also involve some sacrifices; and

(3) the machineries for implementing regulations and procedures need consideration. In advocating changes, an assessment should be made as to whether this is possible, whether the required data base exists, and what should and can be done to ensure their implementation.

16,2.5. Materials

The reliance of developing countries on imported materials is often referred to and the production and use of indigenous materials advocated. (See 5.3,1.1-5, 5.3,2.1-2 and 5.6). However, like procedures, materials being used at present in any country reflect historical and socio-cultural factors. (See Chapter 10). In addition, economic considerations apply in case of the latter. These have shaped training backgrounds of designers and attitudes of clients, users and administrators. A policy for materials should consider, among other things:

(1) the need for selection. Materials for which raw materials are available in the country need to be identified and a few selected for development and propagation based on their popularity, or likely acceptability;

(2) selection of materials should be accompanied by differentiation (geographical) and categorisation (by income levels) to determine in which localities and amongst which segments of the population particular materials are popular. A national outlook to the development and promotion of materials may not always be appropriate;

(3) manpower and technology should be correspondingly attended to, to support the materials development programme;

(4) government's leadership and example in all these points is important;

(5) certain materials, for which raw materials are not locally available, will continue to be imported in finished or semi-finished form. For these it is necessary to formulate long-term policies as to how much can be imported annually and/or whether to develop local alternatives; and

(6) schemes for ensuring effective geographical distribution and

retail of materials are also important, as are those for maintaining prices at reasonable levels.

16.2.6. Manpower

The scarcity of skilled construction personnel is often pointed out, and the need for education and training emphasised. (See Chapter 5 and tactic (6), 5.6). However, expanding executive capacity in construction is not simply a matter of increasing the supply of qualified persons (see Chapter 11). In some cases the non-availability of resources and physical and institutional infrastructure render such an approach difficult or impossible. Manpower policies should be broad and should consider, among other things:

(1) content of training: in some instances much can be achieved by making slight alterations in the detailed content and background of education and training;

(2) organisation and balance: education and training programmes should be coordinated although they might have to be performed by a variety of institutions. There is the need to strike a balance among the categories of skilled personnel trained, to permit effective use of all the nation's manpower resources;

(3) manpower development programmes should be accompanied by appropriate income policies if the nation is to retain its skilled personnel;

(4) formal education or training should not be indiscriminately applied: certain persons in the industry might perform well without it; and not everyone will benefit from it;

(5) ways in which skilled persons are deployed is important. The conflict between qualified youth and experienced but relatively less qualified persons, and among professionals, civil servants and politicians; methods of selection and promotion; and allocation of jobs to private firms (contractors and consultants) all need attention; and

(6) the coordination and integration of the activities of organisations that need to cooperate should also be considered.

16.2.7. Technology

Despite the assumptions to that effect made by some writers on the issue (see 5.4.4.3.1-2), the choice of technology is seldom made on the academic criteria of economic costs or even on wider cost-benefit bases. (See Chapter 12) It is determined by a number of factors including:

* clients' and designers' attitudes and backgrounds;
* national aspirations as perceived by government;
* availability of skills;
* consideration of costs, quality of workmanship and time by government, clients and contractors;
* existing legal and technical procedures in construction; and
* the attitudes of external financing agencies.

Appropriate technology is not necessarily 'intermediate' or low-level technology, as is usually supposed (see 5.4.4.3.2): it is a mixture of technologies adopted by a nation to meet its present needs, as well as ensure the future development of its construction industry. Thus, approaches to the issue should, rather than advocating the adoption of low technologies, consider:

(1) the need for a long-term approach, considering the whole industry. There should be an analysis of various technologies being used at present and the ways in which demand for them is likely to alter in future, to enable comprehensive programmes to be drawn up to respond to such changes; and

(2) in the long term, it is necessary for the industry to retain a high-technology subsector, able to benefit from international developments in construction and to act as a unit on which any desirable and possible future progress in the industry can be based.

16.2.8. Contractors

The development of a local contracting sector is an issue that every country will, sooner or later, have to attend to. The existence of competent contractors will make major contributions towards ensuring value for clients' money and enabling the industry to contend with some of of its most intractable problems. (See Chapters 13 and 15) However, there are no effective blueprints for developing contractors. Moreover,

(1) there are several ways in which capacity in the contracting sector can be enhanced and every nation needs to identify those that are most suited to its conditions;

(2) the characteristics of and problems facing local contractors are the results of combinations of socio-cultural, historical, political and economic factors; and

(3) whereas contractors usually operate in an unfavourable environment, they can do something to help themselves. Most important, contractors associations have a role to play in developing the sector but their relationships with government and corresponding institutions are important.

SELECT BIBLIOGRAPHY

A. Development Theory

1. Adelman, I. and Morris, C.T., Economic Growth and Social Equity in Developing Countries, Stanford University Press, Stanford, 1973.

2. Bhagwati, J., Economics of Underdeveloped Countries, World University Library (Weidenfeld and Nicolson), London, 1971.

3. Brown, M.B., The Economics of Imperialism, Penguin, 1974.

4. Chenery, H. et al, Redistribution with Growth, Oxford University Press, 1974.

5. Curle, A., Educational Strategy for Developing Societies, 2nd Edition, Tavistock, London, 1970.

6. Dalton, G., Economic Systems and Society, Penguin, 1974.

7. Dobb, M., Economic Growth and Underdeveloped Countries, Lawrence and Wishart, London, 1963.

8. Elkan, W., An Introduction to Development Economics, Penguin, 1973.

9. Lipsey, R.G., Introduction to Positive Economics, Weidenfeld and Nicolson, 1966.

10. Onyemelukwe, C.C., Economic Underdevelopment: An Inside View, Longman, London, 1974.

11. Robinson, R. (ed), Developing the Third World: The Experience of the 1960's, Cambridge University Press, Cambridge, 1971.

12. Rostow, W.W. (ed), The Economics of Take-Off into Sustained Growth, Macmillan, London, 1963.

13. Rothko Chapel Colloquium, Toward a New Strategy for Development (A Collection of Papers), Pergamon Press, 1979.

14. Schiavo-Campo, S. and Singer, H.W., Perspectives of Economic Development, Houghton Mifflin, Boston, 1968.

15. Schumacher, E.F., Small is Beautiful, Abacus, 1973.

16. Wallman, S. (ed), Perceptions of Development, Cambridge University Press, 1977.

B. African Development

1. Barbour, K.M. (ed), Planning for Nigeria, Ibadan University Press, 1972.

2. Chambers, R., Managing Rural Development. Ideas and Experience from East Africa, Scandinavian Institute of African Studies, Uppsala, 1974.

3. Davidson, B., Which Way Africa?: The Search for a New Society, 3rd Ed., Penguin, 1971.

4. Dean, E., Plan Implementation in Nigeria: 1962-66, Oxford University Press, Ibadan, 1972.

5. Economic Commission for Africa, Survey of Economic Conditions in Africa, 1973 (Part 1), United Nations, New York, 1974.

6. Federal Government of Nigeria, National Development Plan, 1962-68, Lagos, 1962.

7. Government of the Gambia, Third Development Programme, 1971/72 to 1973/74, Sessional Paper No. 2 of 1971, Barthurst, 1971.

8. Government of Kenya, Development Plan 1974-78, Nairobi, 1974.

9. Government of Tanzania, The Arusha Declaration and Tangayika African National Union's Policy on Socialism and Self Reliance, Government Printer, Dar es Salaam, 1967.

10. Nellis, J.R., A Theory of Ideology: The Tanzanian Example, Oxford University Press, Nairobi, 1972.

C. The Construction Industry

1. Alsop, K. (ed), Construction Research International: Proceedings of the 7th CIB Triennial Congress, Edinburgh, September 1977, Vol. 1, The Construction Press, Lancaster, 1977.

2. Boyd, A.D. and Wilson, A.H., Technology Transfer in Construction, Science Council of Canada (Background Study No. 32), Ottawa, 1975.

3. Burgess, R.A. and White, G., Building Production and Project Management, The Construction Press, Lancaster, 1979.

4. Channon, D., The Service Industries: Strategy, Structure and Financial Performance, Macmillan, 1978.

5. Committee on the Placing and Management of Contracts for Building and Civil Engineering Works (The Banwell Report), Her Majesty's Stationery Office (HMSO), London, 1964.

6. Department of Economic and Social Affairs, Construction Statistics: Studies in Methods, United Nations, New York, 1965.

7. Economic Commission for Europe, Long-term Prospects and Policies in the Construction Sector, United Nations, New York, 1976.

8. Economic Council of Canada, Towards More Stable Growth in Construction, Ottawa, 1974.

9. Emmerson, Sir H., Survey of Problems before the Construction Industries, Report prepared for the Ministry of Works, HMSO, London, 1962.

10. Higgin, G. and Jessup, N., Communications in the Building Industry, Tavistock, 1975.

11. Hillebrandt, P.M., Economic Theory and the Construction Industry, Macmillan, London, 1974.

12. National Economic Development Office (NEDO), The Public Client and the Construction Industries, HMSO, London, 1975.

13. The Tavistock Institute, Interdependence and Uncertainty, Tavistock, London, 1966.

14. Turin, D.A. (ed), Aspects of the Economics of Construction, George Godwin, London, 1975.

15. United Nations, Government Policies and the Cost of Building, UN, Geneva, 1959.

D. Construction in Developing Countries

1. Abrams, C., Housing in the Modern World, Faber and Faber, London, 1964.

2. Allal et al, Development and Promotion of Appropriate Road Construction Technology, International Labour Review, Vol. 116, No. 2, September-October 1977.

3. Andrews, J., et al, Construction and Development: A Framework for Research and Action, Building Economics Research Unit (BERU), University College Environmental Research Group (UCERG), London, 1972.

4. Beyer, G.H., Housing and Society, Macmillan, London, 1965.

5. Bidgood, R., Consulting Overseas: A Guide for Professionals in Construction, Northwood Publications, London, 1976.

6. Building Research Establishment (BRE), Third World Housing: Aspirations, Resources, Programmes, Projects, A Report prepared for the Overseas Division of the BRE by the Shankland Cox Partnership, BRE, 1977.

7. Cockburn, C., Construction in Overseas Development: A Search for Appropriate Aid and Trade Measures for the 1970's, Overseas Development Institute Limited, London, 1970.

8. Department of Economic and Social Affairs, Report of the Ad Hoc Group of Experts on Housing and Urban Development, United Nations, New York, 1962.

9. Department of Economic and Social Affairs, Guidelines for Government Policies and Measures for the Gradual Industrialisation of Building, United Nations, New York, 1974.

10. Drewer, S.P., The Construction Industry in Developing Countries: A Framework for Planning, BERU, UCERG, London, 1975.

11. Economic Commission for Africa, Housing in Africa, United Nations, New York, 1965.

12. Economic Commission for Africa (ECA), The Building Materials Industry in Africa, in ECA, Economic Bulletin for Africa, Vol. VII, Nos. 1 & 2, United Nations, New York, pp. 35-48.

13. Economic Commission for Africa, Rural Buildings in Africa, United Nations, Addis Ababa, 1970.

14. Economic Commission for Africa, Human Settlements in Africa: the Role of Housing and Building, United Nations, Addis Ababa, 1976.

15. Edmonds, G.A., The Construction Industry in Developing Countries, International Labour Review, Vol. 118, No. 3, May-June 1979, pp. 355-369.

16. Koenigsberger, O.H. and Groak, S. (eds), Essays in Memory of Duccio Turin, Pergamon Press, Oxford, 1978.

17. Ministry of Works of Tanzania, Local Construction Industry Study, General Report, Dar es Salaam, 1977.

18. Moavenzadeh, F., The Role of the Construction Industry in the Development Process, Public Policy, Vol. XXII, Spring 1974, No. 2, pp. 219-241.

19. Moavenzadeh, F., Construction Industry in Developing Countries, World Development, 1978, Vol. 6, No. 1, Pergamon Press, pp. 97-116.

20. Neo, R.B., International Construction Contracting, Ph.D., Thesis at Heriot-Watt University, Gower Press, Epping, 1976.

21. Ofori, G., The Role of the Government in the Construction Industries of Developing Countries with Special Reference to Ghana, unpublished M.Sc. Dissertation, University College London, 1977.

22. Rossow, J.A.K. and Moavenzadeh, F., Multi-National Firms in Construction, unpublished mimeo, Massachusetts Institute of Technology, Department of Civil Engineering.

23. Strassman, W.P., The Construction Sector in Economic Development, in The Scottish Journal of Political Economy, November 1970, pp. 390-410.

24. Turin, D.A., Housing in Africa: Some Problems and Major Policy Issues, in Nevitt, A.A. (ed), The Economic Problems of Housing, Macmillan, London, 1967.

25. Turin, D.A. and O'Brien, T.P., Building Materials Industries: Factors Affecting their Growth in Developing Countries, BERU, UCERG, London, May 1969.

26. Turin, D.A., Construction and Development, BERU, UCERG, London, September 1973.

27. Turin, D.A., The Construction Industry: Its Economic Significance and Its Role in Development, Part I, Text, 2nd Ed., BERU, UCERG, September 1973.

28. United Nations Industrial Development Organisation (UNIDO), Industrialisation of Developing Countries: Problems and Prospects, Construction Industry, Monograph No. 2, United Nations, New York, 1969.

E. Ghana

1. Addy, S.T., Advice on the Use of Local Building Materials, in The Consultant, Vol. 3, No. 1, May 1978, pp. 6 and 8.

2. Central Bureau of Statistics, Economic Survey, 1969, Accra, 1970.

3. Central Bureau of Statistics, Economic Survey 1969-71, Accra, 1976.

4. Central Bureau of Statistics, Economic Survey 1972-74, Accra, 1977.

5. Central Bureau of Statistics, Consumer Price Index Numbers, Accra, November 1978.

6. Central Bureau of Statistics, Index Numbers of Prime Building Costs, Accra, 1978.

7. Danquah, M. (ed), Ghana: An Economic Review 1972-73, Editorial and Publishing Services, Accra, 1973.

8. Danquah, M. (ed), Ghana: An Economic Review 1973-75, Editorial and Publishing Services, Accra, 1975.

9. Eshag, E. and Richards, P.J., A Comparison of Economic Developments in Ghana and the Ivory Coast since 1960, Oxford Institute of Economics and Statistics, Bulletin, Vol. 29, No. 4, November 1967, Basil Blackwell, Oxford, pp. 353-372.

10. Ewusi, K., Economic Development Planning in Ghana, Exposition Press, New York, 1973.

11. Gaba, S.Y., Problems Relating to Management and Control of Public Corporations in Ghana, in Greenhill Journal of Administration, Vol. 1, No. 2, pp. 100-117.

12. Government of the Gold Coast, The Development Plan 1951: Being a Plan for the Economic and Social Development of the Gold Coast 1951-56, Accra, 1951.

13. Government of Ghana, The Consolidation Development Plan 1957/58-1958/59, 2 vols., Ministry of Finance, Accra, 1957.

14. Government of Ghana, Seven-Year Development Plan, Annual Plan for the Second Plan Year 1965 Financial Year, Office of the Planning Commission, Accra, January 1965.

15. Government of Ghana, Articles of Agreement and Conditions of Contract for Building Works (Applicable only where Quantities form part of the contract), 4th Ed., 1966.

16. Government of Ghana, One Year Development Plan, July 1970-June 1971, Accra, September 1970.

17. Government of Ghana, Budget Statement 1973, Ministry of Finance, Accra, September 1972.

18. Government of Ghana, Economic Measures for Financial Year 1973-74, Ministry of Finance, Accra, 1973.

19. Government of Ghana, Budget Statement for Fiscal Year 1974-75, Ministry of Finance, Accra, 1974.

20. Government of Ghana, Ghana: An Official Handbook 1976, Accra, 1977.

21. Government of Ghana, Five Year Development Plan 1975/76-1979/80, 3 vols, Accra, January 1977.

22. Government of Ghana, Budget Statement for Fiscal Year 1978-79, Accra, 12 September 1978.

23. Holterman, S., Intermediate Technology in Ghana, Intermediate Technology Industrial Services, London, 1979.

24. Information Services Department, Ghana: An Official Handbook 1972-3, Accra, 1974.

25. Information Services Department, Ghana Today 9, Education in Ghana 1930-74, Accra, 1974.

26. Jones, T., Ghana's First Republic 1960-66, Methuen, London, 1976.

27. Kesse, G.O., Cement Can Be Made Cheaper, in Works and Housing Today, Vol. 1, No. 2, August 1976, pp. 26-27.

28. Krassowski, A., Development and the Debt Trap: Economic Planning and External Borrowing in Ghana, Croom Helm in association with Overseas Development Institute, London, 1974.

29. Kyei, K.G., The Ghanaian Culture and Architecture, in The Consultant, Vol. 2, No., 1, Architectural and Engineering Services Corporation (AESC), May 1977, pp. 17-18.

30. Kyei, K.G., Here and There in Building Construction and Maintenance, in The Consultant, Vol. 3, No. 1, (AESC), May 1978, pp. 9-10.

31. Leith, J.C., Foreign Trade Regimes and Economic Development: Ghana, Columbia University Press, New York, 1974.

32. Lewis, Sir W.A., Report on Industrialisation and the Gold Coast, Government Printer, Accra, 1954.

33. Ministry of Works and Housing, Report of the Working Party on Guidelines for a National Housing Policy, Building and Road Research Institute (BRRI), Kumasi, 1977.

34. Ministry of Works and Housing, Report of the Committee on the Development and Use of Local Building Materials, BRRI, Kumasi, 1978.

35. Peil, M., The Ghanaian Factory Worker: Industrial Man in Africa, Cambridge University Press, 1972.

36. Scott Wilson Kirkpatrick and Partners, Report on the Contracting Industry and Quarry Facilities in Ghana, Ghana Highway Authority, Accra, 1975.

37. Taylor, E., An Organisational Approach to the Analysis of Problems Affecting Education and Manpower Planning in Ghana, Research Institute of the Friedrich-Ebert-Stiftung, Bonn, 1974,

38. Taymann, S.Y., Interim Report on the Manpower Situation in the Construction Industry, Manpower Board, 1977 (unpublished).

F. Entrepreneurial Development

1. Akeredolu-Ale, E.O., The Underdevelopment of Indigenous Entrepreneurship in Nigeria, Ibadan University Press, 1975.

2. Carroll, S.J., Jnr, et al., The Management Process: Cases and Readings, Collier-Macmillan, London, 1973.

3. Damachi, U.G., Theories of Management and the Executive in the Developing World, Macmillan, London, 1978.

4. Drucker, P., Technology, Management and Society, Pan, London, 1970.

5. Galbraith, J.K., The New Industrial State, 2nd Ed., Penguin, London, 1972.

6. International Labour Office, The Enterprise and Factors Affecting Its Operation, ILO, Geneva, 1965.

7. Kast, F.E. and Rosenzweig, J.E., Organisation and Management: A Systems Approach, 2nd Ed., McGraw-Hill, New York, 1970.

8. McClelland, D.C., The Achieving Society, van Nostrand, New York, 1961.

9. Neck, P.A. (ed), Small Enterprise Development: Policies and Programmes, ILO, Geneva, 1977.

10. Penrose, E.T., The Theory of the Growth of the Firm, Basil Blackwell, Oxford, 1959.

11. Tivey, L., The Politics of the Firm, Martin Robertson, Oxford, 1978.

A P P E N D I C E S

APPENDIX A

SOME STATISTICS OF GHANA'S CONSTRUCTION INDUSTRY, 1965-74

A.1. Output

Ghana's construction industry has a capacity of about ¢500 millions at today's prices. Table A.1 shows gross output at constant prices in construction for the period 1965-74. It indicates that output has fluctuated over the years, falling from ¢225.5 m to 132.8 m between 1965 and 1969, rising to ¢196.6 m in 1971, only to fall again and then rise dramatically in 1974. As shown in Chapter 6, the level of output in Ghana depends on a number of factors including government expenditure, imports of building materials and the capacity of the industry. (See 6.5.1-5).

TABLE A.1. Gross Output from Construction Activity (1965-74) (¢ million)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Current Prices	171.7	152.4	133.7	132.8	149.2	179.1	226.6	186.5	239.5	403.9
Constant 1968 Prices	225.5	177.4	147.3	132.8	138.4	159.5	196.6	141.9	161.3	207.7

Source: Economic Survey, 1969, 1972-74.

Table A.2 shows that over 1965-74 construction output was between 13 and 7 per cent of GDP, an average of 9 per cent.

TABLE A.2. Gross Output from Construction and Gross Domestic Product, (1965-74) (Constant 1968 Prices)

(¢ million)

Year	Construction Output	GDP	Construction Output as a Percentage of GDP
1965	225.5	1716.6	13
1966	177.4	1643.5	11
1967	147.3	1693.9	9
1968	132.8	1700.2	8
1969	138.4	1802.4	8
1970	159.5	1928.7	8
1971	196.6	2029.3	10
1972	141.9	1978.4	7
1973	161.3	2088.1	8
1974	207.7	2195.6	9

Source: Economic Survey 1969, 1972-74

TABLE A.3. Gross Output in Construction per Capita (1965-74)

(Constant 1968 Prices)

Year	Construction Output (¢ 10^6)	Population (10^6)	Output per Capita ((¢)
1965	225.5	5.5	41
1966	177.4	7.9	22
1967	147.3	8.1	18
1968	132.8	8.4	16
1969	138.4	8.6	16
1970	159.5	8.6	19
1971	196.6	8.8	22
1972	141.9	9.0	16
1973	161.3	9.2	17
1974	207.7	9.4	22

Source: Economic Survey 1969, 1972-74.

From table A.3, output in construction per capita was an average of ¢21.00 over the period 1965-74.

A.2. Composition of Output

Data on construction in Ghana are classified into Permanent Buildings, Non-permanent Buildings and other construction works (civil engineering). Tables A.4 and A.5 show that over 1965-74 new construction predominated, constituting an average of 88 per cent of output. Of this, 67 per cent was in building and 21 per cent in other works. Buildings accounted for 76 per cent of all new construction, and works 24 per cent.

TABLE A.4. Composition of Gross Output from Construction Activity (1965-74) (At Constant 1968 Prices) (¢ million)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
New Construction										
Permanent buildings	111.7	94.3	68.9	66.9	76.7	89.4	111.5	64.6	89.2	112.4
Non-permanent buildings	33.1	31.3	30.2	30.2	15.5	15.5	16.1	15.9	16.3	15.7
Other construction works*	61.1	36.8	35.5	22.6	25.4	32.7	43.8	37.6	33.7	55.0
SUB-TOTAL	205.9	162.3	134.6	119.7	117.6	137.6	171.4	118.2	139.2	183.1
Repairs and Maintenance										
Permanent buildings	6.0	5.7	5.6	5.2	16.8	16.6	17.9	17.9	17.6	14.4
Non-permanent buildings	4.7	4.5	4.4	4.1	1.7	1.7	1.9	2.0	1.9	1.3
Roads	8.9	4.9	2.6	3.8	2.3	3.6	5.4	3.8	2.6	8.9
SUB-TOTAL	19.7	15.1	12.7	13.1	20.8	21.9	25.2	23.7	22.1	24.6
TOTAL	225.6	177.4	147.3	132.8	138.4	159.5	196.6	141.9	161.3	207.7

* Comprises roads and bridges, airports, aerodromes, harbours, railway permanent way, sewerage, drainage, Posts and Telecommunications installations, electricity generation and distribution civil works, dams and power-houses civil works, water supply civil works, other construction works and land improvement.

Source: Economic Survey 1969, 1972-74.

TABLE A.5. Percentage Composition of Construction Output (1965-74)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
New Construction										
Buildings	64	70	67	73	67	65	65	57	65	61
Works	27	21	24	17	18	21	22	26	21	27
SUB-TOTAL	91	91	91	90	85	86	87	83	86	88
Repairs & Maintenance	9	9	9	10	15	14	13	17	14	12
TOTAL	100	100	100	100	100	100	100	100	100	100

The relative disregard of repairs and maintenance (see table A.4) has led to the deterioration of Ghana's stock of buildings and works. (See 6.4.7; 7.3.1 and 10.7.1.2).

Figures on non-permanent buildings show a sudden fall to about half its value over 1968-69 (see table A.4). No explanation could be obtained for this. (See also 8.2.2). On the other categories of work, changes in output mainly reflect government's policy at the time.

A.3. Value Added

Figures on value added in construction in Ghana are indicated in table 6,3 and compared with gross output in construction, which shows that over the period 1965-74 gross domestic product was 55 per cent of gross output. Table A.6 compares value added in construction with GDP and indicates that value added in construction was between 4 and 6 per cent of GDP, an average of 5 per cent for the period.

A.4. Employment

Table A.7 presents figures on recorded employment in construction in Ghana and compares these with total recorded employment. These figures indicate only enterprises employing ten or more persons and, apart from public sector organisations, do not include employees of small construction firms, the self-employed, or casual workers. The

TABLE A.6. Value Added in Construction and Gross Domestic Product (1965-74) (1968 Prices)

Year	Value Added in Construction (¢ 10^6)	GDP (¢ 10^6)	Value Added in Construction as a Percentage of GDP (%)
1965	99.5	1716.6	6
1966	83.7	1643.5	5
1967	81.4	16.93,9	5
1968	72.9	1700.2	4
1969	72.6	1802.4	4
1970	88.6	1928.7	5
1971	110.6	2029.3	5
1972	85.3	1978.4	4
1973	99.9	2088.1	5
1974	130.2	2195.6	6

Source: Economic Survey 1969, 1972-74.

TABLE A.7. Recorded Employment in Construction and All Recorded Employment (1965-74)

Year	Recorded Employment in Construction (10^3)	Total All Recorded Employment (10^3)	Recorded Employment in Construction as a Percentage of All Recorded Employment (%)
1965	72.8	395.8	18
1966	46.2	361.5	13
1967	47.6	361.2	13
1968	54.7	385.2	14
1969	57.3	395.1	15
1970	49.8	393.0	13
1971	44.1	396.6	11
1972	50.1	424.5	12
1973	46.3	442.1	11
1974	47.4	468.9	10

Source: Economic Survey 1969, 1972-74.

data on all recorded employment also exclude agriculture, small trades and commerce. The current Five-Year Plan (1975-80) estimated total employment in Ghana in 1970 at 3.1 million, and in construction at 73.6 thousand (compared with 49.8 in table A.7); hence construction was 2 per cent of all employment. This, again, neglects employment in the informal sector of the industry.

Recorded employment in construction fell most dramatically in 1966 when the Workers Brigade (see 12.7.2) was disbanded and other organisations laid off several workers as a result of the suspension of several government projects and cuts in public expenditure (see 6.4.3). Note that in 1972, when several projects were again suspended and output fell, employment in construction increased due to government's labour policy (see 12.2.1). Over the period 1965-74 recorded employment in construction was an average of 13 per cent of all recorded employment.

A.5. Capital Formation

Figures on capital formation in construction (1965-74) are presented in table A.8. Compared with total gross fixed capital

TABLE A.8. Capital Formation in Construction and Gross Domestic Fixed Capital Formation 1965-74 (At 1968 Prices)

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Gross Domestic Fixed Capital Formation (£10^6)	351.4	251.1	194.5	186.8	180.0	230.8	262.4	172.7	172.3	268.5
Capital Formation in Buildings and other Construction Works (£10^6)	205.8	161,2	134.7	119.7	117.5	137.5	171.4	118.2	139.2	183.3
Capital Formation in Construction as a Percentage of GDFCF (%)	59	64	69	64	65	60	65	68	81	68

Source: Economic Survey 1969, 1972-74.

formation in Ghana, capital formation in construction ranged between 59 and 81 per cent of the total in the decade, an average of 66 per cent.

A.6. Summary and Generic Relationships

From the above, a summary of vital statistics on Ghana's construction industry is now offered. It shows that generally the industry fits the generic relationships for the construction industries of developing countries observed by Turin (see 5.4.3.1):

- gross output in construction is 9 per cent of GDP; and value added in construction 5 per cent of GDP (Turin found value added in construction to be 5-8 per cent of GDP).
- employment in construction is over 2 per cent of total employment (Turin 2-6 per cent);
- capital formation in construction is about 66 per cent of gross domestic fixed capital formation (Turin 45-60 per cent);
- investment in civil engineering works is about 24 per cent of all investment in new construction (Turin's 30-55 per cent);
- value added in construction is 55 per cent of gross output: the industry obtains 45 per cent of its inputs from other sectors of the economy (Turin's 50-60 per cent).

A.7. Construction Costs

Figures on construction costs (table A.9) show that there has been a rising trend since 1964, but that consumer prices have generally increased at a higher rate than building costs.

Discussions the author held with Quantity Surveyors (see Appendix B.1.7) showed that costs have increased at a faster rate than the official figures indicate. Data obtained from these discussions are shown in table A.10.

The official figures (table A.9) are prime building costs,

TABLE A.9. Indices of Prime Building Costs and Consumer Prices (1964-77) (1963 = 100)

Year	1964	1965	1966	1967	1968	1969	1970
Building Costs	107.6	116.5	122.8	124.7	135.5	152.3	148.0
Consumer Prices	119.7	151.3	171.4	157.0	169.7	181.8	188.5

Year	1971	1972	1973	1974	1975	1976	1977
Building Costs	153.9	180.8	212.2	285.8	396.6	432.2	602.4
Consumer Prices	206.0	226.7	266.4	315.3	408.9	639.3	1382.5

Source: Index Numbers of Prime Building Costs and Consumer Price Index Numbers (1978), Central Bureau of Statistics.

TABLE A.10. Average Building Costs per Square Foot (1965-79)

Year	1965	1970	1976	1979
Cost per sq.ft. (¢)	3.50	5.00	45.00	100.00

Source: From estimates obtained from Quantity Surveyors.

exclusing profits and overheads, but as table A.11 shows, the level of profits and overheads in construction has been rising.

The figures in table A.11 roughly correspond with those in table 6.3: value added in construction has been rising over the years. Although the prices of materials have increased, wages and profits seem to have risen at a faster rate. The former has been due to the difficulty in controlling prices in Ghana (see 7,7.2.2), and the latter to the greater level of costs due to abortive efforts and increasing risks in construction. (See 13,5.2-3).

TABLE A.11. Percentage Composition of Construction Costs (1965-73 and 1974-79)

	1965-1973	1974-1979
Materials	60-65	50-55
Labour	25-30	20-25
Plant	0-5	0-5
Profits and Overheads	10-15	15-25

Source: Compiled from estimates obtained from Quantity Surveyors.

APPENDIX B

FIELD STUDY

B.1. Interviews

The author undertook a detailed study of Ghana's construction industry as part of a wider study of a number of African countries including Malawi, Swaziland and Botswana (See I.7). The reports on the other countries, though not directly relevant to this thesis, have helped the author in developing his ideas on the subject of improving the construction industries of the developing countries. (See Chapters 14-16 and Fig. 16.1). The studies involved interviews of persons in construction in these countries and aides memoire were prepared for the purpose. (See I.9). Copies of these can be found in section B.3.

The study in Ghana took place between 2nd March, 1979 and 31st May, 1979, and the broad categories of persons interviewed were as follows.

B.1.1. Contractors

Amongst contractors with which the author had discussions was the State Construction Corporation which does over 60 per cent of all public projects (see 13.7.1.1.2); the State Housing Corporation, a direct labour public body; two of the largest indigenous contractors, one a Roads Contractors and the other a Building Contractor, who were also Regional Chairmen of the Contractors Association; two graduate builders who have become contractors; and one small contractor.

Thus, persons interviewed represented contracting organisations responsible for nearly half of the total construction output in Ghana.

B.1,2. Contractors Association

The National President of the Civil Engineering and Building Contractors Association (CEBCA) tragically passed away during the period of the study. However, the author had discussions with the Chairmen of two of the regional branches of the Association.

B.1.3. Ministry of Works

The author had discussions with two technical directors at the Ministry of Works and Housing in Accra, and was also received by the Principal Secretary.

B1.4. Client Organisations

Several officials of public sector construction organisations were interviewed by the author. These included the Public Works Department, Architectural and Engineering Services Corporation and the Ghana Highway Authority.

B.1.5. Banks

Detailed discussions were held with the Bank for Housing and Construction, the Bank of Ghana (Development Finance Division) and the First Ghana Building Society.

B.1,6. Training Institutes

In the field of manpower development, interviewees included persons at the Manpower Board, Management Development and Productivity Institute, and the University of Science and Technology.

B.1.7. Professionals

Altogether, four architects, eight quantity surveyors, three engineers and three town planners in public and private consultancy organisations were interviewed, including a past President of the

Institute of Architects, a past President of the Institution of Engineers and a vice-President of the Institution of Surveyors.

B.1.8. Research Institutions

Persons at the Building and Road Research Institute and the Department of Housing and Planning Research were interviewed.

B.1.9. Other Public Bodies

Discussions were held with persons at the Central Bureau of Statistics, the Ministry of Economic Planning, the Town and Country Planning Department and the Department of Lands.

B.1.10. Materials Manufacturers

Amongst manufacturers of building materials interviewed were African Timber and Plywood Ltd; the Bank for Housing and Construction, which owns at least part of a number of industries; and the Bank of Ghana, which also owns some materials-producing enterprises.

B.1.11. Plant-hire Organisations

Discussions were held with the Bank for Housing and Construction and the State Construction Corporation , both of whom have large stocks of plant for hire.

B.2. Report on Interviews

B.2.1. General

As can be seen from B.1, a fair part of Ghana's construction industry was covered in the field study. Some arranged interviews could not take place for diverse reasons. Although most of the interviews were held in Accra, where most of the organisations in the construction industry are based, the regional view was obtained for most of the

industry's aspects at Koforidua (Eastern Region) and Kumasi (Ashanti).

Certain parts of the aides memoires, for example, questions on contractors' turnover and employment practices, turned out to be too sensitive in practice and were omitted in discussions or the answers discounted, since some appeared unreasonable.

Although there was a similarity of views on certain topics such as difficulties to contractors posed by shortages of materials, there were divergences of opinions on other issues such as whether present contract administration procedures aided or impeded contractors. On the whole, the results of the interviews form a considerable part of the information on the various institutions, persons or procedures in Part III of the thesis. The following observations may be made in addition.

B.2.2. Construction and the Economy

Most of the data in Chapter 6 were obtained from publications of the Central Bureau of Statistics. The head of the National Accounts Section, which deals with construction statistics, had resigned his post earlier in the year so the author was unable to obtain explanations for abnormal figures in the data such as the rather high construction output in 1974 (see table 6.1) or the high proportion of construction in capital formation in 1973 (see table A.8) (See Question 3 in B.3.10).

However, some officers indicated that estimates of construction output (see Q.1 in B,3.10) were computed, with the help of the PWD, using imports of materials for the year as a basis. Responses to questionnaires sent by the Bureau to various organisations were seldom received on time, if they were received at all (see Q.2 and 3 in B.3.10). Non-permanent construction was calculated as a percentage of that of permanent buildings (See Q.1d in B,3.10, and table A.4). The author's general impression was that data on construction in Ghana were unreliable.

B.2.3. Government and Construction

Some of the material in Chapter 7 was obtained from responses to B.3.3, B.3.4 and B.3.11. The subordinate organisations of the Ministry of Works complained that administrative interference in their operations was harmful to them. Some of the answers to the questions were evasive. For example, none of the organisations would say that their employees worked for contractors in their spare time (see Q.17, B.3.4). It was particularly difficult, for reasons still not clear to the author, to obtain accurate data on the categories of employees of the various organisations (see Q.18, B.3,4). Data that were given were inaccurate. For example, one body gave about 7000 as the total of its workforce, whereas government publications and newspapers usually put it at 12-14,000. Thus, all such data were omitted from the thesis.

Generally, the Ministries did not criticise each other, although government and the media frequently referred to instances of inter-Ministerial rivalry or non-cooperation. The hierarchy of ministries portrayed in Chapter 7 appeared accurate from the various discussions. (See Figure 7.1).

B.2.4. Planning

Part of Chapter 8 is made up of responses to B.3.10 and B.3.11. The regional view of the situation was obtained at Koforidua and Kumasi. Officers in Accra blamed influential officials in the regions, especially Regional Commissioners, for initiating or awarding unlisted projects (see B.3.11 Question 1.b-c), whereas consultants in the industry generally blamed the Ministry of Economic Planning for failing to relate demand for construction to the availability of the industry's inputs (see B.3.10, Q.1c).

The information on the Central Bureau of Statistics in Chapter 8 was largely obtained in response to B.3.10.

B.2.5. Procedures

Chapter 9 is based on discussions with the Department of Lands (for which the questions were off-the-cuff, but similar to B.3.3); the Town and Country Planning Department (B.3.14); PWD, AESC and GHA (B.3.4); Contractors (B.3.1) and the Contractors Association (B.3.2).

Discussions with the Lands Department confirmed the complex nature of matters relating to land in Ghana and created the impression that the department itself was losing prestige and power as some of its duties were delegated to other bodies such as the Lands Commission or the courts of law.

Whereas some officers of the Town and Country Planning Department agreed that existing bye-laws made building expensive, they were of the opinion that standards were necessary to preserve and enhance the quality of the environment, or at least parts of it, and especially those designated high class areas by the planners. They realised, however, the present irrelevance of such bye-laws in most areas of the country but looked forward to the time when all places would be declared statutory planning areas, and the department would become sufficiently powerful to enforce building regulations. They placed responsibility for the delays in issuing planning permission on the PWD, and blamed their department's inability to match the pace of urban development on the time it took for its schemes to be approved by the Minister of Works, and its continuing administrative and legal weaknesses. Architects did not have any serious problems with existing regulations and bye-laws (see B.3.7, Q.13-15).

The organisations administering public contracts did not believe their procedures harmed contractors (see Questions 2-8, B.3.4), but contractors thought otherwise (See Questions C.1-7, B.3.1). The former as well as private consultants thought present contract documents were adequate. To them, contractors found the documents difficult or insufficient because they were not qualified or would not employ

qualified persons. (See Question 9, B.3.4; Questions 16-19 in B.3.7; and Q.6 in B.3.8), Some surveyors had helped or would help contractors to claim any sums of money due to them, but others would not. The latter asserted that it was solely up to the contractor. (See Question 7, B.3.8), Generally, public servants supported the maintenance of the status quo with regard to paying contractors for their work, whereas private consultants and contractors were in favour of a change. (See Q.5, B.3.1 and Q.5, B.3.4). Consultants - other than architects - and contractors favoured the introduction of new, fairer conditions of contract. (See Q.3-4, B.3.1; Q.16-18, B.3.7 and Q.8-9, B.3.8).

B.2.6. Materials

Chapter 10 is based on discussions with Architects (B.3.7), Research Institutions (B.3.9) and materials manufacturers (B.3.12). Architects were divided in their opinions on the possibility of replacing conventional materials with locally-developed ones. Some thought standards should be upheld and believed cheaper construction would lower them. Others would leave the issue with their clients without trying to influence them. Yet others would specify locally-developed materials if they were available and genuinely cheaper than conventional alternatives, (See Q.9-10, B.3.7).

The research bodies lamented the lack of enthusiasm amongst Ghanaian entrepreneurs and industrialists in implementing the results of their studies. (See Q.6, B.3.9.).

The materials manufacturers had common problems: difficulty in obtaining foreign exchange, dilapidated or obsolete building stock and equipment; and lack of skilled personnel. (See Q.2-3, B.3.12). Generally, public-owned units appeared worst off (see Q.10, B.3.12).

The report of the committee on local materials (see 10.5.2) was discussed with two of its members.

B.2.7. Manpower

The author of a report on the manpower situation in the construction industry (1977) was interviewed (see 11.3.2). The part of Chapter 11 on the University of Science and Technology (see 11.8.1.1-5) and the Management Development and Productivity Institute (see 11.7.2) are based on responses to B.3.6. Additional information for the chapter came from discussions with contractors (see Q.B4-11, B.3.1) and others such as architects (see Q.11-12, B.3.7).

The educational and training institutes were eager to maintain the teaching of the 'correct practice', meaning the old British-based syllabi. Some contractors and consultants, however, believed there was need for a reorientation. (See Q.6, B.3.6 and Q.11-12, B.3.7).

B.2.8. Technology

Chapter 12 is based on discussions held at Precast Concrete Panel Factory and African Timber and Plywood Ltd., as well as with plant hire organisations (using B.3.13), contractors (B.3.1), architects (B.3.7), client organisations (B.3.4) and research bodies (B.3.9)

Architects believed that their duty lay with their clients. They would, therefore, not consider the technology to be employed by the contractor in their design. (See Q.1, B.3.7). Contractors stressed the difficulty in obtaining plant in good condition. One related an anecdote: he paid ¢1,000 for a day's use of a 15-year old bulldozer which could not even move a small tree! (See Q.13-15, B.3.1). They thought hire rates for plant were prohibitive considering especially the quality of the plant available.

Plant-hire organisations complained of their inability to obtain sufficient foreign exchange to import plant and spares, and of the shortage of skilled plant operators and mechanics. (See Q.6-8 and 13, B.3.13).

Client organisations did not have plans for nor did they show any inclination towards revising the prequalification criteria for registering and classifying contractors (see Q.13-15, B.3.1).

B.2.9. Contractors

Chapter 13 draws from discussions with contractors (B.3.1), the Contractors Association (B.3.2), the Client Organisations (B.3.4), the Banks (B.3.5), Architects (B.3.7) and Surveyors (B.3.8). Generally, contractors and their association saw themselves as victims of an unfavourable operating environment, whereas officials and consultants considered them inefficient or dishonest. (See Q.D3-6, B.3.1; Q.9-10, B.3.2; Q.9, B.3.4; Q.7-9, B,3.5; Q.2, B.3.7; and Q.13-14, B.3.8).

The State Construction Corporation opposed the complete nationalisation of the industry as a way of facilitating its development. It believed competition was essential for efficiency in the industry.

The Contractors Association believed the government could do more to help contractors. (See Q.10, B.3.2), and wished to be enabled to play a bigger role in the efforts to encourage local contractors (see Q.27-28, B.3.2).

B.3. The Aides-Memoire

B.3.1. CONTRACTOR

A. Contractor's Background

1. Do you have any professional/technical qualifications in Building or Engineering,

2. How did you become a contractor, and why?

3. For how long have you been a contractor?

4. Have you worked for any other public or private client, consultancy or construction organisation?

5. Do you have any other business(es) apart from contracting?

6. Who are your partners in the construction firm, and what positions do they occupy?

7. If you do not have any technical/professional qualifications in construction, have you considered teaming up with somebody with such qualifications?

B. The Firm and its Resources

1. What is the annual turnover of your firm?

2. What is the size of your labour force (quantity and level of skills)?

3. a) What would be a typical organisation chart for a site?
   b) How much authority do your site agents or foremen have?

4. What sort of staff do you employ in your office?

5. How many permanent employees do you have? Do you employ all your casual labour in the local area adjacent to the site?

6. Do you have any trouble recruiting adequate numbers of workers?

7. How high is your labour turnover?

8. Do you have any trouble with the trade unions?

9. What is the level of wages and salaries in your firm: do you pay the rates stipulated by government or a little bit more?

10. Do you have any incentive schemes to boost productivity?

11. Are the government's rates of minimum wages too high for the amount of work your employees are able to do?

12. Have you made any financial losses on any project?

13. a) What sort of plant do you own!
    b) Do you hire them out when you do not need them yourself?

14. Do you have any trouble obtaining spare parts for your plant?

15. Are you able to hire the plant that you do not own yourself?

16. Do you think the hire rates are fair?

17. a) Do you have any trouble obtaining adequate supplies of materials?
    b) Do you obtain your materials on credits or on payment of cash?

18. What do you do when shortages of key materials (for example, cement and steel) bring work on the site to a standstill? ie do you, for example, lay off some, or all, of your workers?

19. a) How do you control your finance?
    b) Does your firm experience occasional financial problems?

2). a) Are you able to obtain loans from the conventional or any specially established banks?
    b) What would you consider as normal profit on a typical project?

21. Have you had any contracts terminated by the client for any reason?

22. Is the government providing any assistance or encouragement to construction firms, and have you made use of any such support services?

23. a) Who do you see as offering the most effective competition to your firm?
    b) Would you like to see expatriate firms taken over by local people, would you like there to be joint expatriate-local operations or would you like the foreign firms to remain unchanged?

24. What are the major problems facing your firm?

25. Do you have any plans for expanding your operations?

C. Contract Administration

1. How do you obtain information about prospective contracts?

2. If you do not employ a Quantity Surveyor permanently, how do you prepare estimates for tendering?

3. a) Do you see the government's tendering policies as affecting the effective growth of your firm?
    b) Do contracts always go to the deserving firms?

4. Are contract documents adequate?

5. Do you obtain prompt payment for interim certificates?

6. Are the client organisations efficient? For example, are inspections, valuations and authorisations prompt enough?

7. Is there any political or bureaucratic interference in contract administration?

D. Improving the Situation

1. Have you, at any time, considered merging with another firm in order to expand the scope of your operations?

2. a) Do you see the formation of mergers as a way of increasing the effectiveness of small construction firms?
   b) What do you see as some of the factors preventing the formation of mergers,

3. Do contractors have a good social image in your country?

4. Do you see the formation of a Contractors' Association (or the strengthening of the existing one) as one of the measures for solving some of the problems facing the construction industry?

5. Do you think the government is aware of the problems facing the construction industry?

6. From your experience, would you consider construction a risky business?

7. What advice would you give someone trying to enter the contracting field for the first time?

8. What would you like to see the government and other institutions doing to improve the lot of the small contractor?

9. What should the small indigenous contractor himself do?

B.3.2. CONTRACTORS ASSOCIATION

A. Formation and Membership

1. a) When and how was your association formed?
   b) How does one become a member, and what conditions must one satisfy?

2. How many members do you have at present: large, medium, small firms; local, expatriate and joint ventures?

3. a) Is every contractor in the country a member of your association?
   b) Would you like to see membership of the association made mandatory for all contractors, for example, as one of the criteria for prequalification for public sector contracts?

B. Aims, Policies, Succeses, Failures

4. What are the main aims of your association?

5. What specific major successes have you achieved?

6. Is the association very effective in influencing government policy?

7. What particular government decisions, acts or omissions have been harmful to the construction industry?

8. Would you like to see the complete indigenisation of the industry in your country, and why?

C. Difficulties of the Local Contractor and Government's Awareness

9. a) What are the major difficulties facing the indigenous contractor?
   b) In what ways can they be removed, and what is your association doing in this connection?

10. a) Is the government doing enough to help the local contractor? What other announced policies has it yet to implement,
    b) What other things would you like to see it doing to help local contractors?
    c) How often have you brought these matters to the notice of the government?
    d) Is the absence or insufficiency of action on the part of the government the result of a lack of understanding of the plight of the local contractor or a shortage or inadequacy of the necessary resource inputs such as finance, foreign exchange, trained personnel, equipment, etc?

D. The Organisation of the Association

11. How often does the association meet, and how is it run ie national and regional secretariats, executives, etc?

12. How are the problems of members ascertained?

13. Does the association deal only with matters concerning the whole or a majority of members, or would it take up the case of one or a few members? ie, does it have the organisational ability to do the latter?

14. How are your activities financed, and what sort of activities do you organise?

15. Are there any other associations or institutions for contractors? If so, would you like to see all these groups merge, and what is your association doing about that?

E. The Local Contractor

16. What, would you say, is the level of competence of the average local contractor?

17. Is there any formal training programme for contractors?

18. Does your association run any training courses for members or their employees?

19. What advice would you give someone who wanted to become a contractor?

20. What, would you say, is the reputation of the contractor among government officials and the general public?

21. a) What is your association doing to enhance the reputation of contractors?
    b) Do you have any sanctions against members who fail to perform effectively on projects, and tend to discredit the association?

22. a) Are 'contractors' really committed to the field of building, or do they have interests and/or investments in other forms of business?
    b) Would you say the small contractor wishes to expand his activities?
    c) Do you think the financial institutions are justified in considering the contractor a risky customer in terms of loans?
    d) Would a contractor reinvest his profits in his construction enterprise, would he seek to diversify his activities by investing in other business, or would he spend it?

23. a) What is the attitude of local contractors to the merging of two or more of their firms, and how popular has the formation of mergers been?
    b) What are the particular obstacles in this connection?
    c) Is your association encouraging members to form mergers?
    d) If not, does it not see any opportunities or advantages for the large or medium-sized firm?

F. Local Contract Practice

23. Do you think present tendering procedures entail fair competition with the job going to the most deserving bidder?

24. a) Are present contract conditions and administrative procedures fair to the contractor?
    b) What changes would you like to see?

25. a) In what particular parts of the construction process are bottlenecks most likely to occur? (eg interim payments, inspections, preparation of production information, physical execution)
    b) How do these hold-ups affect contractors' operations?

26. Would you say there is an atmosphere of goodwill and mutual trust among the participants of the building process, or are there usually conflicts and divergence of interests and loyalties?

G. Problems and Actions

27. What are the major difficulties facing the local construction industry?

28. How can these difficulties be reduced or removed altogether?

B.3.3. MINISTRY OR DEPARTMENT OF WORKS

A. Policies, Actions and Results

1. What are the government's policies with respect to the construction industry?

2. What real action has been taken on any or all of these policies?

3. What difficulties were met, or are being met, in implementing these policy decisions?

4. What are the overall results of the implementation of the measures?

5. What causes can you see as lying behind the failure of any of these measures?

B. The Ministry or Department

6. What are the main responsibilities of your department or ministry?

7. Does the department or ministry have enough qualified personnel to carry out all its duties?

8. Is there sufficient coordination of the activities of all institutions concerned with the construction industry?

9. Have there been any occasions of duplication of effort, inter-departmental rivalry or insufficient definition of duties?

10. What are the problems facing the department or ministry?

11. a) What are the major problems facing the industry?
    b) What plans does the ministry/department have for alleviating these?

B.3.4. CLIENT ORGANISATIONS

A. The System and how it Affects Contractors

1. a) What are the responsibilities of your organisation?
   b) Have you had any complaints from contractors or others involved in your industry that your tendering policies and contract administration procedures are affecting their operations?

2. a) What sort of tendering procedures do you employ?
   b) Is the tendering period long enough to allow contractors to prepare estimates?
   c) What tender documents do you normally use? Could you provide copies?
   d) Is there enough time in the precontract period for the successful bidder to prepare proper site layouts, construction programmes and financial plans?

e) From your experience, do contractors usually use any of the simple management tools mentioned in (d)? If they do not, is it because they find them irrelevant, or because they cannot prepare them?

3. What is the interim valuation, certification and payment procedure?

4. Could you trace the path of a typical certificate from the time the site valuation is made to the time payments are actually made to the contractor?

5. a) Have you had any complaints from contractors over undue delays in the payment of monies due to them?
   b) What measures are you taking to improve the situation?

6. a) Are contracts pre-financed by the client? ie does the contractor get any advance payment before commencing the project?
   b) What measures do you employ to ensure that the advances are actually used on the projects?

7. Are contractors able to handle the sort of contracts you give them (especially the small contractor)?

8. Have you had any major problems with contractors? ie bankruptcies, terminations, disputes, non-completion, etc?

B. <u>The Local Contractor</u>

9. Would you say that contractors in your country are generally competent?

10. a) From your experience, do contractors always know their rights and obligations under the conditions of contracts?
    b) Do you think the terms of contract are fair to the contractor?
    c) Would your officers help a contractor to make a claim to which he is entitled, but of which he is ignorant? eg Fluctuations, Variation Orders, etc.

11. a) Do you require performance bonds from contractors?
    b) Can they obtain such bonds in this country?

12. a) Do contractors have to register with your organisation before they can undertake some of your contracts?
    b) How many contractors are there, and what are their ownerships?
    c) Is it possible to obtain promotion to a higher classification?

13. What are some of the criteria for prequalification for registration in the various classes of contractors? Can you provide copies of registration forms and prequalification requirements?

14. Does the contractor himself have to be a person with a professional, managerial or technical qualification?

15. Does your organisation have any means of ensuring that the contractor's claim to possess any equipment and employ certain people are really genuine or that the equipment, say a truck, is really used by his construction firm and not other subsidiaries?

16. Are contractors willing to employ qualified personnel? Are they able to do so?

17. Do any of your members of staff work for contractors or other clients in their spare time?

C. Executive Capacity

18. a) Do you think your organisation has all the personnel it needs (at the head office, regional and district levels) to handle all the contracts entrusted to it?
    b) Would you say your contract administration procedures are efficient and free from any red-tape and delays? eg. Inspections, Valuation and Payment.
    c) Please indicate an organisational chart for your body and outline the main duties of the various divisions.
    d) Please provide details of the personnel employed by your organisation classified by profession or other qualification.

19. a) Is there any political or administrative interference in your organisation's activities, and does this increase or decrease the effectiveness of your operations?
    b) Does the political interference (if any) affect the performance of contractors?

20. a) What other organisations are there which control the construction industry in this country?
    b) Is there enough coordination of their activities?
    c) Have there been any instances of duplication of effort or lack of a clear definition of duties?

D. Specifications and Building Regulations

21. a) Do you think your specifications, building regulations and the various codes are appropriate to the conditions of this country?
    b) What specific changes would you like to see in any of these,

E. Support Services

22. a) What help or support services do you provide for contractors or people who want to be contractors?
    b) What advice or warning would you give any aspiring contractors or practising contractors or any other people working in construction?

F. Problems and Plans

23. a) What, do you think, are the most important problems facing the contractor in this country, especially the indigenous ones?
    b) What is your organisation doing, or hoping to do, to help the contractor?

24. a) What are the problems of the construction industry in this country?
    b) What plans has your organisation made to tackle these?

25. What are the problems of your organisation?

B.3.5. BANKS AND OTHER FINANCIAL INSTITUTIONS

A. Operating Policies

1. a) Do you do business with contractors or developers?
   b) What sort of financial services do you offer them?

2. What conditions would you require a potential borrower to satisfy, and what sort of information do you ask for?

3. If a contractor-customer of yours wanted to obtain credit from you what procedure would he follow?

4. What is the rate of interest chargeable on your loans?

5. How are repayments made, and at what intervals? Do you have any special arrangements in this connection for contractors?

6. a) If a contractor presented an interim valuation certificate to you would you deem it enough evidence to qualify him for a short-term loan not exceeding the value of the certificate?
   b) Would you charge your customer-contractor any amount for performing the above service, and what would be the level of such a charge?

B. The Behaviour of Contractor-Customers

7. Do you have any trouble effecting repayments from contractors who have borrowed from you?

8. a) Have there been any instances in which contractors have diverted parts of loans advanced to them to uses other than construction?
   b) Is it the normal practice of your institution to follow up such loans and ensure that they are used for the projects for which they were given?

9. a) Is the contractor more of a risk in the granting of loans than other businessmen?
   b) Would you say that businessmen in your country are generally consumption- rather than investment-oriented? ie would they reinvest profits or spend them?

10. What are your penalties for non-payment by borrowers?

C. Problems and Future Plans

11. a) What are some of the problems facing the contractor in this country, of which you are aware?
    b) What assistance are you giving your contractor-customers to overcome these problems?

12. Does your institution have any plans for measures to give more help to the contractor in future?

B.3.6. TRAINING INSTITUTES (CONSTRUCTION)

A. Establishment and Intake

1. When, and under what circumstances, was your institute established, and who provides funds for its operation?

2. a) What is your annual intake (by type of course)?
    b) What numbers and types of personnel have you produced since your inception?

3. a) On what is the total annual intake of students in a particular course based: is it on the needs of the industry, the physical facilities and teaching potential available, or on guidelines issued by government or a professional or other body?
    b) Is your institute producing enough people to satisfy the requirements of the local industry?

4. What sort of liaison is there between the institute and the industry or a body determining the manpower situation in the industry?

5. Has there been any difficulty in obtaining any entry applicants for any of the courses? Is it the case in this country that people resort to training in construction trades only after searching unsuccessfully for white-collar jobs for long periods of time?

B. Graduates and Job Opportunities

6. Does the institute follow up on the activities of its graduates in order to review its courses?

7. Do your graduates find any difficulty in getting jobs?

8. Have you tried to train people specifically for the contracting business? Do you see the need for such training?

9. Do you have any short-term courses available to contractors and their staff, and others involved in construction? If so, do you have any difficulty inviting contractors and others to attend or allow their employees/subordinates to attend such courses?

C. Productivity, Job Satisfaction and Conditions of Service

10. African workers are said to have very low productivity as compared to their counterparts in the developed countries. What, do you think, are some of the reasons for this?

11. Do you think jobs given to workers in the industry are challenging enough to enable them to obtain the necessary experience and self-confidence?

12. Are salary levels, promotion prospects and other conditions of service adequate to induce the qualified person to remain and work in the country?

C. Problems and Strategies

13. What are some of the major difficulties facing your institute?

14. a) What are some of the main problems facing the construction industry in your country?
    b) What strategy and tactics would you like to see adopted to solve the problems you outlined?

15. a) Are there any plans for increasing the intake of students, widening the scope of existing courses, or introducing new courses?
    b) What would be your most important requirements in such an expansion exercise, and how would you obtain them?

B.3.7. ARCHITECT/ENGINEER

A. The Local Contractor

1. Do you have, as one of your design criteria, the ability of the small indigenous contractor to build the structure?

2. In your opinion, is the indigenous contractor efficient?

3. Is the contractor always fully aware of his rights and obligations under the conditions of contract?

4. Are there any delays in providing the contractor with any information, certification or authorisation that he may need?

5. Would you say the indigenous contractor is committed to the business of building, or does he consider it as one from which he can earn quick profits?

6. Would a contractor employ a qualified engineer or surveyor, or buy plant and equipment if he had the funds?

7. Is it common for contractors in your country to indulge in conspicuous spending of their earnings?

8. Do contractors usually delegate some authority to their subordinates, especially site agents or foremen?

B. Appropriate Technology

9. a) Is it possible to make more use of indigenous building materials so as to conserve foreign exchange?
   b) What problems do you see in this connection?

10. Is there scope for developing traditional construction and integrating it into the mainstream of the industry?

11. Is the graduate or technician in construction freshly produced by the university or technical institute fully aware of the problems and peculiar conditions of the industry in this country?

12. Would you like to see any changes in the syllabi of the courses for training professional, technician or other grades in construction?

13. Would you say that the building regulations, standards and specifications, in use in your country, are consistent with the peculiar conditions prevailing in it? For example, climate, culture, purchasing power, foreign exchange and availability of skills.

14. Do you think the designer's initiative is thwarted by such regulations and standards?

15. Which particular regulations or codes would you like to see changed?

C. The Organisation of the Industry

16. Do you consider the present organisation of the industry and the rights and duties of the various participants appropriate?

17. a) Is there adequate cooperation among the participants in the building process, especially
      (i) among the professional consultants themselves?
      (ii) between the professionals and the contractor?
   b) Is there smooth communication among the participants?

18. What changes would you like to see in the Conditions of Contract and other similar documents? eg reallocation of duties or rights.

19. a) Are the present client organisations effective and efficient?
   b) What advice would you give them in order to effect improvements in their operations?

D. Problems and Actions

20. a) What are the problems facing architectural/engineering consulting firms in this country?
   b) What can be done about such problems?

21. a) What are the major issues facing the construction industry at the moment?
   b) What strategies and tactics should be adopted to solve them?

B.3.8. QUANTITY SURVEYOR

A. Estimating and the Contractor

1. Are contractors in this country able to prepare accurate estimates?

2. a) What methods of estimating do they normally use?
   b) Is the tendering period long enough to allow accurate estimating?

3. Are private surveyors or those in public organisations usually employed by contractors to prepare one-off estimates?

4. Are contractors always able to use the Bill of Quantities?

5. Have you ever used, or are you planning to use, any different system of itemisation of works in the light of the shortcomings usually attributable to the existing bill formats, even by surveyors and qualified estimators? eg units in bill different from those used in marketing.

B. Contractor's Rights

6. Is the contractor always aware of his financial rights under the conditions of contracts? eg fluctuations and variations.

7. Have you ever helped a contractor whose work you were administering to put in a financial claim? Would you do so if the contractor himself was ignorant of his rights?

C. Relationships among Participants

8. a) Would you say there are always smooth relationships among the members of the building team in this country?
   b) Do you always receive, on time, all the information you require from architect/engineer?

9. Can you recall a few instances where conflict amongst the participants were clearly observed by you, or by others?

D. Contracts and Contractors

10. What is the normal length of the precontract period? ie appointing architect, preparing drawings, bills, specifications and tendering.

11. What would you consider to be the major bottleneck in the building process?

12. a) Have you had to advise any of your clients to terminate a contract?
    b) What were the particular circumstances of such cases?

13. Do you think contractors in this country are competent?

14. What do you see as some of the reasons why contractors in this country are not successful, and what can be done about these?

E. Building Cost Data

15. a) What is the import content of materials and components used in this country?
    b) Do you see scope for the development of local materials and traditional construction techniques?

16. a) What has been the trend in construction costs in the past few years?
    b) To what major factors would you attribute this trend?
    c) What can be done to improve the situation?

17. a) What would be the breakdown of building costs in this country in terms of labour, materials, plant and equipment, and profits and overheads?
    b) Do you have any comment to make on these?

18. In your opinion, what percentage profit are contractors able to make?

F. Problems and Actions

19. Do you think this country has adequate quantities and qualities of professionals and technicians in construction? If not, what can be done to improve the supply of such persons?

2). a) What are the major problems facing the construction industry in this country?
    b) What can be done about them?

8.3.9. RESEARCH INSTITUTIONS

1. What are some of your findings about the construction industry in this country, especially in terms of management and economics? Please provide copies of reports.

2. a) Have you developed any local materials and/or techniques?
    b) How have they been received by the populace, and how widespread is their use in the country.
    c) What are some of the factors hindering the wider use of these items?

3. What are the major problems facing the industry in this country?

4. What serious problems does your institute have at the moment?

5. a) Do you think the government's policies for construction are adequate and practicable?
    b) What additional measures would you like to see introduced?

6. Is there enough liaison among the various bodies concerned with construction in this country?

7. Is complete indigenous capacity achievable in this country in the very near future?

8. a) Do you have links with similar institutions in other parts of Africa or the third world, or for that matter, any country?
   b) Are there any institutions or practices in other countries that you would like to see introduced in this country?

B.3.10. CENTRE FOR STATISTICS

1. a) How do you compute estimates of construction output and value added? What are the units used? eg money values and/or numbers of projects.
   b) On what criteria are the estimates for the informal, non-monetary sector based?
   c) Do you think the statistics portray a fair picture of the industry in your country?
   d) If not, how would you like to see such data collected, presented, or interpreted?

2. With employment practices in construction so flexible and with labour turnover in the industry so high, how do you collect data for employment in the industry?

3. Can you give any major reasons for the abnormal figures for the years ...?

4. What difficulties do you usually encounter in collecting data on construction?

5. What plans do you have of improving and/or extending your information-gathering activities?

6. What do you expect to be the trends in the industry in, say, the next decade in terms, for example, of output, employment, productivity and costs?

B.3.11. MINISTRY OF ECONOMIC PLANNING

1. a) Has inadequate construction capacity ever constituted a constraint in the implementation of development plans?
   b) How serious has the shortfall between construction targets and actual achievements been?
   c) Are annual allocations of funds to capital projects always related to the capacity (national, regional, district; size and sophistication of projects; resources - local and imported; allocation of foreign exchange for materials and plant, raw materials and spare parts) of the construction industry?

2. a) Is construction activity used by government to introduce changes (ie deflation or reflation) into the economy?
   b) How effective have such measures been and what has been their effect on the construction industry: were any such adverse developments envisaged?
   c) Is construction considered to have much employment-generation potential in this country?

3. a) Is the effective indigenisation of the construction industry one of the government's priorities?
   b) What do you see as the most pressing problems facing the industry?
   c) What can your ministry do to help solve some of these problems?
   d) What are you actually doing in this connection?

B.3.12. MATERIALS MANUFACTURERS

1. a) What is the annual output of your enterprise; and what is its total capacity?
   b) When was it established?
   c) Who are your major competitors?

2. a) What raw materials do you require?
   b) Are any of your raw materials imported? Is it possible to develop local alternatives, and what are the problems involved?
   c) Are some of your raw materials renewable (eg timber) and if so, what are the provisions being made to ensure their continued supply? eg replanting of timber.

3. a) From what sources do you obtain your raw materials, equipment and spare parts?
   b) Are the supplies regular? What are the reasons for any irregularities in supplies?

4. What is the ownership of the enterprise?

5. How many people do you employ and what are their nationalities and grades?

6. How are your products distributed at the national, regional and district levels?

7. How popular are your products and other components they help to make?

8. What has been the trend of the cost of your products over the years? Is the price controlled by government and if so, is the controlled price adequate?

9. What do you see as the major problems facing the construction industry in this country?

10. a) What problems does your establishment have at the moment?
    b) What are its plans for the future?

B.3.13. PLANT HIRE ORGANISATIONS

1. a) When was your enterprise established?
   b) What is its ownership?

2. What types and numbers of plant and equipment do you own?

3. What is the scope of your operations (geographically)?

4. What conditions govern the hiring of your items of plant, and what is the procedure: would you lend to anybody or do you limit the field, and how?

5. a) What are the hire rates, and what has been their trend in recent years?
   b) Has the government ever interfered with your pricing?

6. a) Do you provide operators with your plant?
   b) How are plant operators trained in this country; do you have any problems finding such qualified persons?

7. a) Do contractors always use your equipment for the right tasks?
   b) Do they order them at the right time?
   c) What, do you think, is the factor of utilization of your hired plant?

8. How do you service/maintain your stock?

9. Do contractors often owe you money?

10. Do you have problems obtaining foreign exchange for new stock or spare parts?

11. a) Is it possible to produce any of your items of plant or spare parts locally?
    b) If so, does your company have plans to do so?

12. Who are your competitors?

13. a) What are the main problems facing your enterprise?
    b) What are its plans for the future?

14. What do you see as some of the major difficulties facing the construction industry in this country?

15. What advice would you give to somebody, or a group of people, who wished to set up a plant hire organisation in this country?

B.3.14. TOWN PLANNING DEPARTMENTS, LAND ADMINISTRATORS AND LOCAL AUTHORITIES

1. What are the procedures involved in obtaining a building permit/ title to land?

2. What major problems face those who want to obtain such permits/titles?

3. a) When were your building regulations and bye-laws drawn up, and by whom?
   b) Have you had any complaints that such regulations, bye-laws and codes are stifling local initiative in materials development, or discouraging investment in construction by the ordinary people?
   c) If so, what are you doing about them?
   d) From whom did you receive most of such complaints: architects, contractors, clients, etc?

4. What is the machinery for enforcing your regulations or bye-laws at the design stage and during construction after permits have been granted?

5. What, do you think, are the main problems facing the construction industry in this country?

6. a) What links does your organisation have with the research and other institutions?
   b) Have you ever revised any of your procedures, regulations or bye-laws as a result of certain research findings, professional or public demands or government instruction?

APPENDIX C

HOUSING IN GHANA

C.1. Priority

All the development plans, annual budgets and publications on the subject stress the determination of government to ensure that all Ghanaians are properly housed. (See 7.2.1). Housing has always been one of the government's priorities, and its policies for it have been implemented with some dedication. The main aim has been to provide

> "... decent housing within a decent environment at a cost that most Ghanaian families can afford ..."[1]

Over the years, however, policies on and efforts in the housing sector have been variable and disjointed, so that despite a generation of conscientious effort, problems of housing are acute, especially in the urban areas.

C.2. Housing Needs

Census data indicate that Ghana's population increased from 6,726,815 in 1960 to 8,559,313 in 1970[2], and that over the same period the housing stock increased from 636,189 to 898,670 houses[3]. Housing production in the period was about 3.6 per thousand of population (see table C.1, row 1). At the same time, there was some improvement in occupancy rates.

The population is expected to exceed 14 million by the end of this century[4]. In terms of housing needs, however, the rate of urbanisation is more important than increases in total population, since the housing problem is more acute in the urban areas (see C.1). Available data show that the number of urban settlements increased from 27 in 1931 to 135 in 1970[5]. The major contributing factor to the increase in the urban population is the increasing scale of migration from the rural to the

TABLE C.1. Population and Housing, 1970

Region	1970 Pop. (000)	% Change 1960-70	Houses (000's)	% Change 1960-70	Persons /House 1970	Persons /House 1960	Average Annual Prod. of Hous.	Annual product. per 1000 Popul.
All Regions, Total	8559.3	+27.2	941.2	+47.9	9.1	10.6	30498	3.56
Urban	2472.5	+59.4	180.3	+70.0	13.7	14.6	7427	3.00
Rural	6086.8	+17.6	760,9	+43.5	8.0	9.8	23071	3.79
Western, Total	770.1	+23.0	86.6	+41.7	8.9	10.3	2549	3.31
Urban	207.3	+36.8	14.2	+12.1	14.7	12.0	153	0.74
Rural	562.7	+18.6	72.4	+49.4	7.8	9.8	2396	4.26
Central, Total	890.1	+18.5	111.8	+41.1	8.0	9,5	3256	3.66
Urban	258.6	+22,9	19.2	+22.1	13,5	13.4	346	1.34
Rural	631.5	+16.7	92.6	+45.8	6.8	8.5	2910	4.61
Greater Accra,Total	851.6	+73,2	71.2	+94.3	12.0	13.4	3455	4.06
Urban	726.5	+84.7	52.8	+20.7	13.8	16.4	2888	3.97
Rural	125.1	+27.1	18.4	+44.6	6.8	7.7	567	4.53
Eastern, Total	1261,7	+15.3	159.2	+47.3	7.9	10.1	5111	4.05
Urban	310.1	+40.5	26.6	+66.7	11.6	13.9	1066	3.44
Rural	951.6	+ 9,0	132.6	+43.9	7.2	9.5	4045	4.25
Volta, Total	947.3	+21.9	137.4	+61.8	6.9	9.2	5246	5.54
Urban	151.1	+48.0	17.0	+71.7	8.9	10.3	711	4.71
Rural	796.2	+17.9	120.4	+60.5	6.6	9.0	4535	5.70
Ashanti, Total	1481,7	+33.6	136.4	+44.4	10.9	11.7	4197	2.83
Urban	440.5	+59.2	22.0	+43.6	20.0	18.0	669	1.52
Rural	1041.2	+25.1	114.4	+44.6	9.1	10.5	3528	3.39
Brong Ahafo Total	766.5	+30.4	80.9	+73.0	9.5	12.6	3414	4.45
Urban	169.1	+84.8	10.7	+16.4	15.9	18.6	574	3.40
Rural	597.4	+20.4	70.2	+67.9	8.5	11.9	2040	4.75
Northern, Total	727.6	+36.9	71.8	+42.7	10.1	10.6	2147	2.95
Urban	148.3	+114.8	13.0	+152.7	11.4	13.4	787	5.31
Rural	579.3	+25.3	58.8	+30.1	9.9	10.2	1360	2.35
Upper, Total	862.7	+13.9	85.9	+15.1	10.0	10.2	1124	1.30
Urban	60.8	+86.8	4.8	+95.8	12.7	13.3	235	3.86
Rural	801.9	+10.6	81.1	+12.3	9.9	10.0	890	1.11

Source: Housing Statistics, BRRI, vol. 1, No. 2, July 1975.

urban areas. This has led to a housing surplus in and the blighting of the rural areas, whereas housing shortages and high rents have resulted in the development of slums in and adjacent to the urban areas, such as Nima in Accra, Ashiaman in Tema, and Anloga in Kumasi. In the urban centres,

> "... some 6,000 dwellings are produced annually. This ... contrasts sharply with the estimated annual need of some 16,000 units at present occupancy rates."[6]

Table C.2 shows estimates of recurrent housing need, ie excluding replacement and decrowding needs. The totals in table C.2 contrast with those in C.1 and show the difference between production and needs.

C.3. Government Involvement

Ghana has no written, consistent housing policy (see 7.2.1). The approach to the issue has been ad hoc, disjointed, and variable. Government has been involved in housing in a number of ways including direct provision, financial assistance, subsidies, encouragement and control. Generally, most attention has been concentrated on the plight of the urban poor.

C.3.1. Direct Provision

Government agencies charged with increasing the nation's housing stock include the state Housing Corporation (SHC) and the Tema Development Corporation.

C.3.1.1. State Housing Corporation (SHC)

The SHC was established in 1955 to build houses for sale or letting[7]. In recent times government has encouraged it to concentrate on the latter. It now manages over 20,000 units altogether, in its estates in the regional capitals and larger towns[8]. It designs its own houses and builds most of them by direct labour, although it employs contractors

TABLE C.2. Recurrent Housing Needs - Regions (1971-85)

Region	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Western	4158	4270	4386	4504	4626	4750	4879	5010	5146	5284	5427	5574	5724	5879	6038
Central	4806	4936	5069	5206	5394	5491	5639	5792	5948	6109	6274	6443	6613	6796	6979
Greater Accra	4598	4722	4850	4981	5115	5254	5395	5541	5691	5824	6022	6164	6331	6502	6677
Eastern	6813	6998	7185	7379	7579	7783	7994	8209	8391	8699	8893	9135	9379	9632	9892
Volta	5115	5253	5395	5540	5690	5844	6001	6164	6330	6501	6676	7057	7142	7232	7427
Ashanti	7894	8214	8436	8664	8897	9138	9384	9638	9898	10166	10440	10722	11011	11308	11614
Brong Ahafo	4139	4250	4363	4483	4604	4729	4856	4987	5122	5260	5402	5548	5698	5852	6010
Northern	3929	4035	4144	4256	4371	4489	4610	4734	4862	4993	5128	5267	5409	5555	5705
Upper	4658	4784	4913	5046	5382	5422	5566	5613	5765	5921	6081	6245	6413	6586	6764
All Regions	46110	47462	48743	50059	51638	52900	54325	55688	57153	58757	60343	62155	63720	65342	67106

Source: National Housing Estimates, BRRI, Current Report No. 6, September 1976.

on some occasions. By 1976 the corporation received 27,000 new applications each year[9]: its own annual target was 2,000 houses. This was raised to 2,500 in 1977/78, but SHC seldom builds more than 600 houses a year. It built less than 300 in 1974/75. By 1979 it had over 4,000 applicants who had paid their deposits and whose houses should have been completed, in some cases four years back[10]. SHC's problems include its inability to obtain finance on favourable terms. Government makes it sell or rent houses below economic levels. It relies on conventional materials most of which it finds difficult to obtain, and it is unable to engage contractors at prices for which they are willing to work. Altogether, the SHC has made little impact on the urban housing situation, and has failed to reach the levels envisaged for it.

C.3.1.2. Tema Development Corporation

The Tema Development Corporation was established to plan and develop the new industrial and harbour city of Tema. Although it has over 17,000 housing units[11], it has not been able to satisfy the demand for shelter in Tema, and the area has one of the nation's largest and most deprived slums. (See C,2).

C.3.1.3. Other Agencies

In the mid-1970's the Social Security and National Insurance Trust embarked upon an urban estate development scheme in all the regional capitals, which has become bogged-down by the acute shortages of cement.

The Bank for Housing and Construction (see 13.7.2.1) will start, in 1980, the construction of an estimated 10,000 housing units at Legon, near Accra, a programme in which it is in partnership with a private Spanish firm.

C.3.1.4. Low-Cost Housing

In the late 1960's government launched a low-cost housing programme which involved the use of landcrete blocks mainly, in the building of simple units by contractors in the urban areas for low-income earners. This scheme, too, had little success: in the two-year period 1968-70 out of a target of 8,000 units only 1776 were completed[12]. The scheme was intensified by the second military government in 1972 but abandoned in 1977. (See C.3.2).

C.3.2. Sites and Services

Obtaining title to land has always been difficult in Ghana (see 7.6.4 and 9.3.3). The enthusiasm of a section of the urban population to build their own houses has also not been matched by the rate at which essential infrastructural services were provided by government, although private developers in the formal sector pay a fee for such a purpose. In 1977 government announced that:

> "... the low-cost housing programme has not had the desired impact on the low income housing problem and as a result, Government intends to bring this programme to an end ... The sites and services approach ... will be adopted and given due emphasis."[13]

Under the sites and services scheme, financed with a World Bank loan, government will acquire large areas of land which it would clear, provide with roads, water, electricity and other communal facilities, and distribute to interested persons at reasonable prices. The scheme, envisaged for all the regional centres, is still at the feasibility studies stage.

C.3.3. Finance

The cost of a house is beyond the means of the majority of Ghanaians. (See also 3.6.1-2). Government has aided or encouraged the provision of loan and mortgage schemes for housing development.

The public-owned First Ghana Building Society was established in 1956 to encourage individuals to save and to give mortgages to its members. By 1978, 1680 persons had benefited from its mortgages[14] which are up to 80 per cent of the estimated cost of the project with an amortisation period of 5 to 25 years, and at commercial rates of interest (14 per cent in 1979). The Society's major constraints are its inability to attract sufficient savings despite impressive promotion efforts, and the tendency of its mortgagors to default in payments. After some 23 years of operation the Society has only seven branches in the regions.

The commercial banks[15] and the State Insurance Corporation provide mortgages to their customers. In general, their services are beyond the reach of most Ghanaians since most of the banks are in the urban areas, insist upon a minimum deposit (invariably 20 per cent of estimated cost of the project), have short periods of amortisation (maximum 15 to 25 years), and require that the individual should earn a regular income (thus excluding farmers whose earnings are seasonal) or certain minimum levels of income (depending on the size of the mortgage)[16].

Government established the National Mortgage Financing and Guarantee Scheme under the Bank of Ghana in 1976 to facilitate the flow of funds from the commercial banks to prospective developers. Under this scheme, government guarantees 95 per cent of the estimated cost of the building, thus reducing the banks' risks. The interest rate is fixed at not more than 2 per cent above each bank's prevailing rate of interest on savings deposits. It would seem then, that the scheme brings mortgages within the reach of most Ghanaians. However, between April, 1976 and May, 1979, it had served only 32 people despite the publicity accorded it[17]. This disappointing record is due mainly to non-cooperation from the banks because of the low interest rate. The public-owned Ghana Commercial Bank, the largest and most nationwide bank in Ghana, refuses to take part in the scheme. The acute shortages of building materials, the need for

a deposit of 5 per cent of estimated costs and the fact that individual banks will only entertain applications from customers with good saving records, are other factors contributing to the limited success of the scheme.

C.3.4. Rural Housing

In the rural areas government's policy has been that of assisting the people to provide houses for themselves. The

> "... aim of Government in the rural housing sector is to improve the quality of housing in terms of durability and strength without unduly increasing costs and to provide the social infrastructure which are currently lacking in the rural areas ..."[18]

To achieve these aims, the Roof Loans Scheme had been established in 1956; by 1977 it had catered for 13,900 persons. (See also 10.5.5 and 10.5.10). The Wall Protection Loans Scheme, started in 1972, had also aided 100 persons by 1977[19]. These are dismal results compared with the estimate that more than 82 per cent of Ghana's population live in settlements of less than 20,000 persons[20].

C.4. The Private Sector

Most of Ghana's stock of housing is owned by private persons. In the urban areas, most private demand for housing occurs in the conventional medium or small sub-sector and are built by informally organised groups of self-employed persons, with the building owner directly supplying and controlling the use of materials. (See also 15.9). Most houses in this category are usually only up to 3-storeys high, although a few are 4- or 5-storeys, and under multiple occupation. The semidetached or self-contained flat or bungalow are still the preserve of the middle class. Government makes attempts to fix and control rents by the Rent Control Unit, a subordinate body of the Ministry of Works and Housing (see 7.3.1.4.), but in the face of an acute urban housing shortage, rents

have escalated. The situation is most serious in Accra where a single-room in a compound house is rented at over ¢40 per month, about a third of the minimum monthly wage. (See Table 12.2).

Rural housing is predominantly private: either monetary or subsistence, using traditional materials, although building in conventional materials is considered a mark of progress which most people aim for, and some have achieved. (See 10.5.5 and 10,6). The majority of rural settlements have Village Development Committees, and some of these committees have commissioned physical plans for their areas, purchased simple common equipment such as a concrete mixer and Tek block press, and are endeavouring to raise the quality of houses in their locality. Such groups have been helpful in the administration of the Roof Loans Scheme (See C.3,4) and it is government's intention to encourage these and smaller housing cooperatives. (See 7,8,1-3).

Large-scale speculative housing became popular in the early 1970's as developers built several units in the urban areas for rent. Acute shortages of materials in the latter part of the decade throttled most of the schemes, Formally organised cooperative housing is a new idea pioneered by the Tema Cooperative Housing Association which was initiated by the staff of the Department of Housing and Planning Research, UST. (See 7.8.3.2 and 15,9).

C.5. Notes and References

1. Government of Ghana, Five-Year Development Plan 1975-1980, Part II, Accra, 1977, p. 415.

2. Quoted in Ministry of Works and Housing, Report of the Working Committee on a National Housing Policy, BRRI, Kumasi, 1976, p. 7.

3. Ibid., p. 7.

4. Ibid., p. 4,

5. Ibid., p. 4.

6. Government of Ghana, One-Year Development Plan 1970-71, Accra, September 1970, p.142.

7. Ministry of Works and Housing, State Housing Corporation, in Works and Housing Today, vol. 1, No. 2, August 1978, pp. 12-13.

8. Government of Ghana, Ghana: An Official Handbook 1976, Accra, 1977, p. 252.

9. Ibid., p. 252.

10. The figures of annual targets, production and number of applicants were obtained from the State Housing Corporation in April, 1979.

11. Government of Ghana, op. cit. (ref. 8), p. 254.

12. Government of Ghana, op. cit. (ref. 6), p. 142.

13. Government of Ghana, op. cit. (ref. 1), p. 423.

14. These figures were obtained from the First Ghana Building Corporation in April, 1979.

15. The major commercial banks in Ghana are the Ghana Commercial Bank, Barclays Ghana Ltd., Standard Bank Ghana Ltd., National Savings and Credit Bank, and Premier Bank. Special banks include the Bank for Housing and Construction, Cooperative Bank and Agricultural Development Bank.

16. These are summarised from Government of Ghana, op. cit. (ref. 8), and interviews with the financial institutions. (See Appendix B.1.5).

17. Facts on the scheme were obtained in interviews at the Development Finance Division, Bank of Ghana. See also Ministry of Works and Housing, Bank of Ghana Announces New Housing Scheme, in op. cit. (ref. 7), p. 9.

18. Government of Ghana, op. cit. (ref. 1), p. 422.

19. Ibid., p. 412.

20. Ministry of Works and Housing, op. cit. (ref. 2), p. 4.